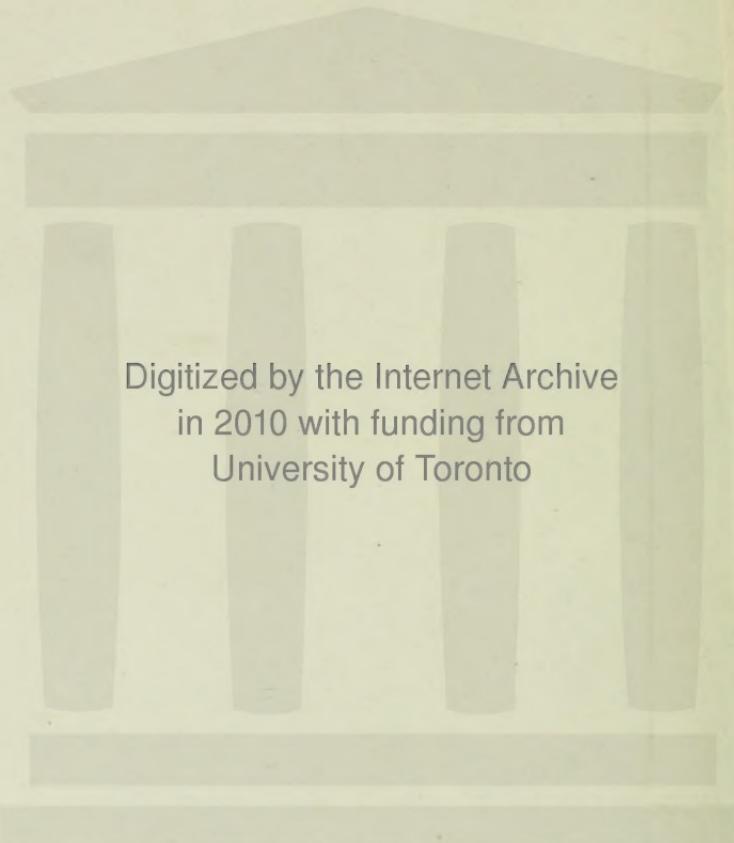
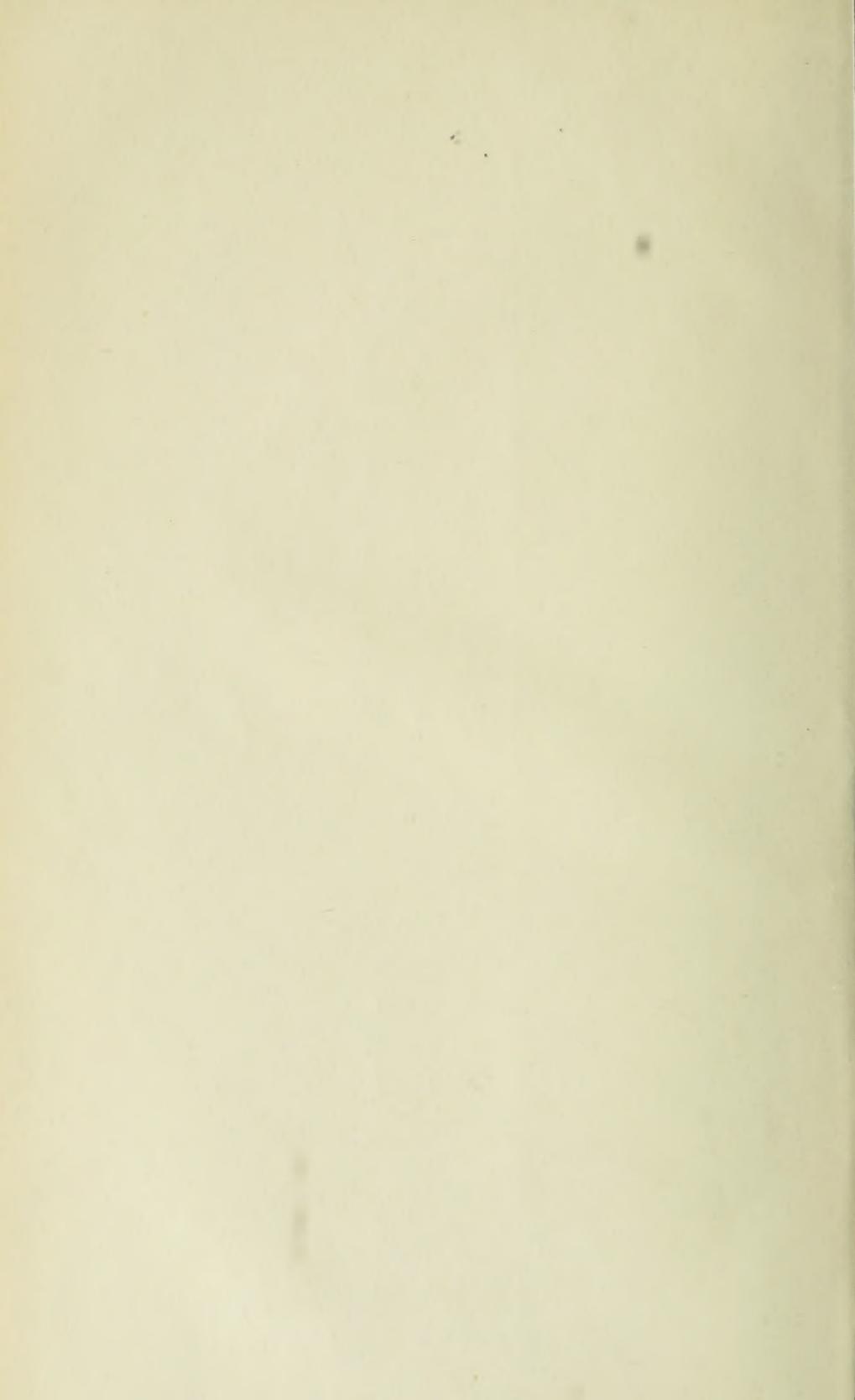


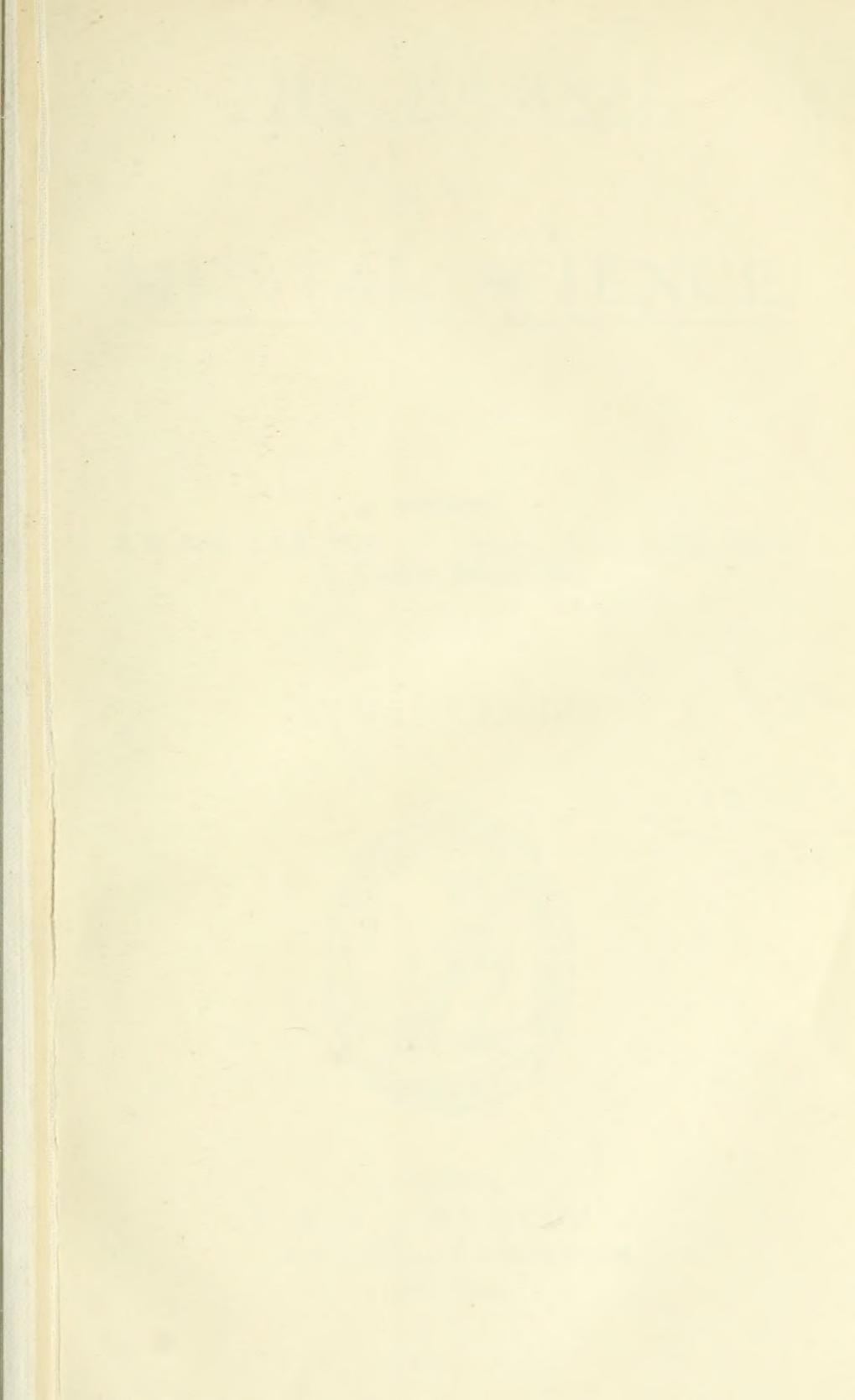
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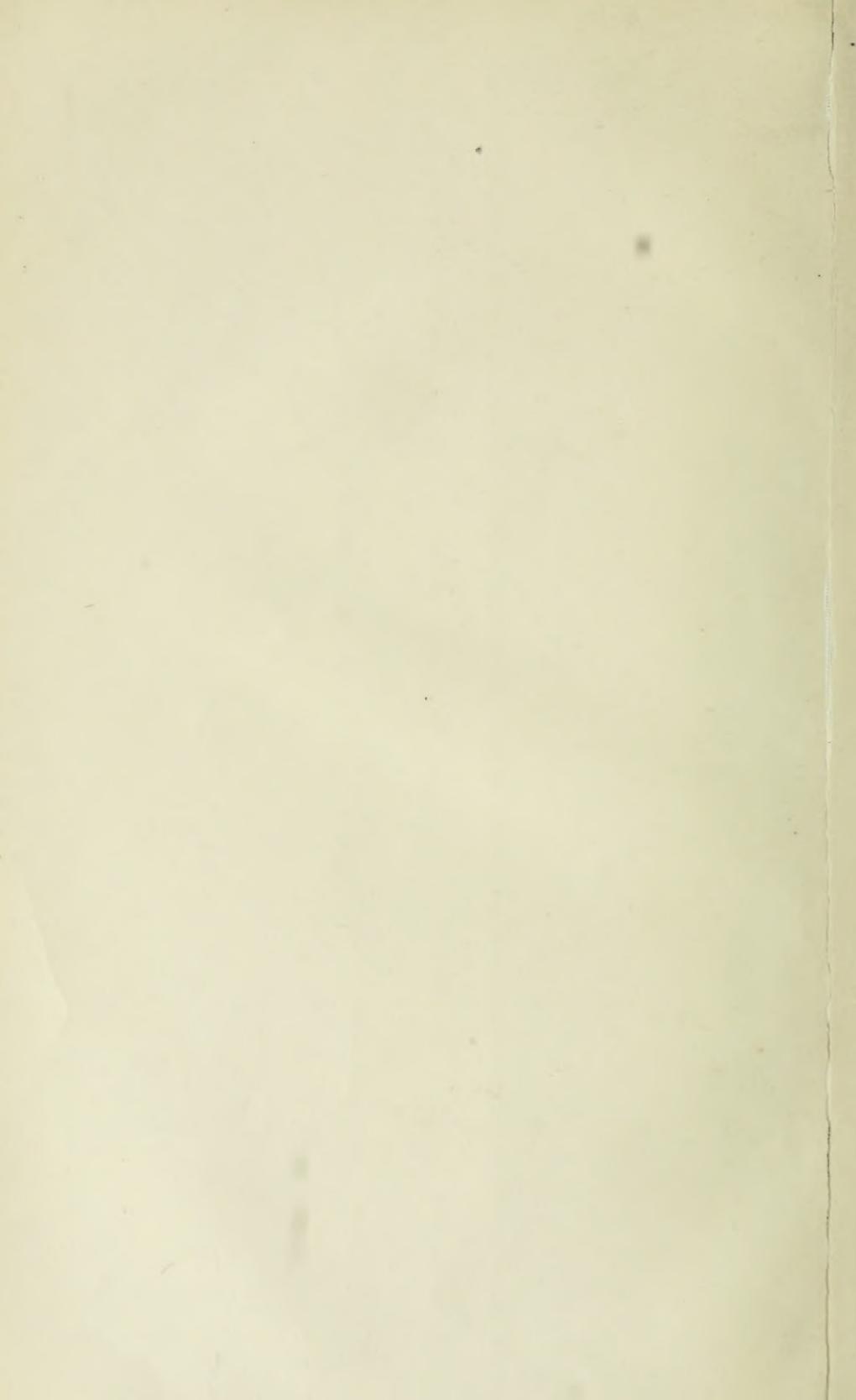


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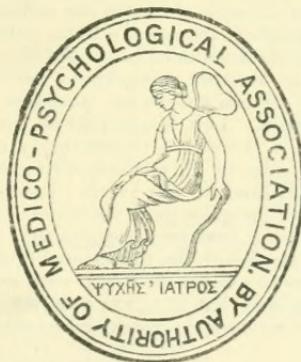
OF

MENTAL SCIENCE.

EDITORS:

J. R. Lord, C.B.E., M.B. Henry Devine, O.B.E., M.D.
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VOL. LXVIII.



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MDCCCCXXII.

"In adopting our title of the *Journal of Mental Science*, published by authority of the Medico-Psychological Association, we profess that we cultivate in our pages mental science of a particular kind, namely, such mental science as appertains to medical men who are engaged in the treatment of the insane. But it has been objected that the term mental science is inapplicable, and that the term mental physiology or mental pathology, or psychology, or psychiatry (a term much affected by our German brethren), would have been more correct and appropriate; and that, moreover, we do not deal in mental science, which is properly the sphere of the aspiring metaphysical intellect. If mental science is strictly synonymous with metaphysics, these objections are certainly valid; for although we do not eschew metaphysical discussion, the aim of this JOURNAL is certainly bent upon more attainable objects than the pursuit of those recondite inquiries which have occupied the most ambitious intellects from the time of Plato to the present, with so much labour and so little result. But while we admit that metaphysics may be called one department of mental science, we maintain that mental physiology and mental pathology are also mental science under a different aspect. While metaphysics may be called speculative mental science, mental physiology and pathology, with their vast range of inquiry into insanity, education, crime, and all things which tend to preserve mental health, or to produce mental disease, are not less questions of mental science in its practical, that is in its sociological point of view. If it were not unjust to high mathematics to compare it in any way with abstruse metaphysics, it would illustrate our meaning to say that our practical mental science would fairly bear the same relation to the mental science of the metaphysicians as applied mathematics bears to the pure science. In both instances the aim of the pure science is the attainment of abstract truth; its utility, however, frequently going no further than to serve as a gymnasium for the intellect. In both instances the mixed science aims at, and, to a certain extent, attains immediate practical results of the greatest utility to the welfare of mankind; we therefore maintain that our JOURNAL is not inaptly called the *Journal of Mental Science*, although the science may only attempt to deal with sociological and medical inquiries, relating either to the preservation of the health of the mind or to the amelioration or cure of its diseases; and although not soaring to the height of abstruse metaphysics, we only aim at such metaphysical knowledge as may be available to our purposes, as the mechanician uses the formulae of mathematics. This is our view of the kind of mental science which physicians engaged in the grave responsibility of caring for the mental health of their fellow-men may, in all modesty, pretend to cultivate; and while we cannot doubt that all additions to our certain knowledge in the speculative department of the science will be great gain, the necessities of duty and of danger must ever compel us to pursue that knowledge which is to be obtained in the practical departments of science with the earnestness of real workmen. The captain of a ship would be none the worse for being well acquainted with the higher branches of astronomical science, but it is the practical part of that science as it is applicable to navigation which he is compelled to study."—Sir F. C. Bucknill,
M.D., F.R.S.

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 1914-18. David G. Thomson, *C.B.E.*, M.D., County Asylum, Thorpe, Norfolk.
 1918. John Keay, *C.B.E.*, M.D., Bangour Village, Uphall, Linlithgowshire.
 1919. Bedford Pierce, M.D., The Retreat, York.
 1920. William F. Menzies, M.D., Staffordshire County Mental Hospital,
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1918. Bevan-Lewis, William, *M.Sc.Leeds*, *M.R.C.S.*, *L.R.C.P.Lond.*, 22, Cromwell Road, Hove. (PRESIDENT, 1909-10.)
1907. Bianchi, Prof. Leonardo, Manicomio Provinciale di Napoli. Musee N. 3, Naples, Italy. (*Corr. Mem.*, 1896.)
1900. Blumier, G. Alder, *M.D.*, *L.R.C.P.Edin.*, Butler Hospital, Providence, U.S.A. (*Ord. Mem.*, 1890.)
1900. Bresler, Johannes, *M.D.*, Sanitätsrat, Director of the Provincial Mental Hospital, Kreuzburg, Oberschlesien, Germany. (Editor of the *Psychiatrisch-neurologische Wochenschrift.*) (*Corr. Mem.* 1896.)
1902. Brush, Edward N., *M.D.*, Sheppard and Enoch Pratt Hospital, Towson, Maryland, U.S.A.
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1868. Adams, Josiah O., M.D.Durh., F.R.C.S.Eng., J.P., 117, Cazenove Road, Stamford Hill, London, N. 16.
1921. Adamson, James Weeden Woodhams, M.D.Durh., M.R.C.S.Eng., L.R.C.P. & L.S.A.Lond., Senior Neurologist, Ashhurst Hospital (Ministry of Pensions); Ashurst Hospital, near Oxford.
1919. Adey, J. K., M.B., C.M.Melb., Receiving House, Royal Park, Melbourne, Australia.
1886. Agar, S. Hollingsworth, jun., B.A.Camb., M.R.C.S.Eng., L.S.A., Hurst House, Henley-in-Arden.
1921. Aidan, Gordon Wemyss Thomson, M.B., Ch.B.Glas., Asst. Med. Officer, Glasgow Royal Asylum, Gartnavel, Glasgow.
1899. Alexander, Hugh de Maine, M.D., C.M.Edin., Medical Superintendent, Kingseat Mental Hospital, Newmachar, Aberdeen.
1899. Allmann, Dorah Elizabeth, M.B., B.Ch.R.U.I., Assistant Medical Officer, District Asylum, Armagh.
1908. Anderson, James Richard Sumner, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, Cumberland and Westmorland Mental Hospital, Garlands, Carlisle.
1898. Anderson, John Sewell, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Hull City Asylum, Willerby, near Hull.
1921. Anderson, William, M.B., Ch.B.Aberd., Senior Assistant Physician, Royal Asylum, Aberdeen.
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1918. Archibald, Alexander John, M.B., Ch.B.Glasg., 245, Langlands Road, Govan, Glasgow.
1918. Archibald, Madeline, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., 245, Langlands Road, Govan, Glasgow.
1882. Armstrong-Jones, Sir Robert, C.B.E., D.Sc.Wales, M.D., B.S., F.R.C.P.Lond., F.R.C.S.Eng., 105, Harley Street, W. 1 (and Plas Dinas, Carnarvon, North Wales). (*Gen. Secretary from 1897 to 1906.*) (PRESIDENT, 1906-7.) Lord Chancellor's Visitor-in-Lunacy. (Lect. on Ment. Dis. St. Barth. Hosp.)
1910. Auden, G. A., M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., D.P.H.Camb., F.S.A., School Medical Officer, Education Office, Council House, Margaret Street, Birmingham.
1891. Aveline, Henry T. S., M.D.Durh., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, County Asylum, Cotford, near Taunton, Somerset. (*Hon. Sec. for S.W. Division, 1905-11.*)
1909. Bain, John, M.A., M.B., B.Ch.Glasg., Medical Superintendent, Mental Hospital, Rowditch, Derby.

1913. Bainbridge, Charles Frederick, M.B., Ch.B.Edin., Assistant Medical Officer, Devon County Mental Hospital, Exminster.
1906. Baird, Harvey, M.D., Ch.B.Edin., Periteau, Winchelsea, Sussex.
1878. Baker, H. Morton, M.B., C.M.Edin., 7, Belsize Square, London, N.W. 3.
1888. Baker, Sir John, M.D., C.M.Aberd., 18, Nettlecombe Avenue, Southsea.
1904. Barham, Guy Foster, M.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Claybury Mental Hospital, Woodford Bridge, Essex.
1919. Barkas, Mary Rushton, M.Sc.N.Z., M.B.Lond., M.R.C.S., L.R.C.P.Lond., National Hospital, Queen Square, London, W.C.
1913. Barkley, James Morgan, M.B., Ch.B.Edin., Senior Medical Officer, Bracebridge Asylum, Lincolnshire.
1910. Bartlett, George Norton, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, City Mental Hospital, Exeter.
1901. Baskin, J. Longheed, M.D.Brux., L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Ashhurst War Hospital, Littlemore, Oxford.
1902. Baugh, Leonard D. H., M.B., Ch.B.Edin., The Pleasaunce, York.
1874. Beach, Fletcher, M.B., F.R.C.P.Lond., 5, De Crespigny Park, Denmark Hill, S.E. 5. (*Secretary Parliamentary Committee, 1896-1906. General Secretary, 1889-1896. President, 1900.*)
1892. Beadles, Cecil F., M.R.C.S., L.R.C.P.Lond., Gresham House, Egham Hill, Egham.
1921. Beaton, Thomas, O.B.E., M.D., B.S.Lond., M.R.C.S., M.R.C.P.Lond., Senior Assistant Physician, Bethlem Royal Hospital, London, S.E. 1.
1913. Bedford, Percy William Page, M.D., Ch.B., Dipl. Psych. Edin., West Riding Asylum, Wakefield, Yorks.
1909. Beeley, Arthur, M.Sc.Leeds, M.D., B.S.Lond., M.R.C.S., L.R.C.P.Lond., D.P.H.Camb. (*Assistant Medical Officer, E. Sussex Educational Committee*), Windybank, King Henry's Road, Lewes.
1914. Bennett, James Wodderspoon, M.R.C.S., L.R.C.P.Lond., Marsden, Babbacombe Road, Torquay.
1912. Benson, Henry Porter D'Arcy, M.D., C.M., F.R.C.S., M.R.C.P.Edin., Farnham House, Finglas, Dublin.
1914. Benson, John Robinson, F.R.C.S.Eng., L.R.C.P.Lond., Resident Physician and Proprietor, Fiddington House, Market Lavington, Wilts.
1899. Beresford, Edwyn H., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Tooting Bee Mental Hospital, Tooting, London, S.W. 17.
1912. Berneastle, Herbert M., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Croydon Mental Hospital, Warlingham, Surrey.
1920. Birch, W. S., M.C., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Stone House, Dartford, Kent.
1894. Blachford, James Vincent, C.B.E., M.D., B.S.Durb., M.R.C.S., L.R.C.P. Lond., M.P.C., City Asylum, Fishponds, Bristol. (Lect. on Ment. Dis. Univ. of Bristol.)
1898. Blair, David, M.A., M.D., C.M.Glasg., County Asylum, Lancaster.
1919. Blake, Stanley, L.R.C.P.&S.Irel., Assistant Medical Officer, Portrane Asylum, Donabate, Ireland.
1919. Blakiston, Frederick Cairns, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Isle of Man Asylum.
1897. Blandford, Joseph John Guthrie, B.A.Camb., M.R.C.S., L.R.C.P.Lond., D.P.H.Camb., Hotel St. George, Liverpool.
1918. Blandford, Walter Folliott, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Devonshire Club, S.W. 1.
1904. Bodvel-Roberts, Hugh Frank, M.A.Camb., M.R.C.S., L.R.C.P.Lond., L.S.A., Napsbury Mental Hospital, near St. Albans, Herts.
1920. Boland, J. J., M.B., B.Ch.N.U.I., Assistant Medical Officer, House of St. John of God, Stillorgan, Co. Dublin.
1900. Bolton, Joseph Shaw, D.Sc., M.D., B.S., F.R.C.P.Lond., Medical Superintendent, West Riding Asylum, Wakefield. (Prof. of Ment. Dis. Univ. of Leeds.)

1892. Bond, Charles Hubert, C.R.E., D.Sc., M.D., C.M.Edin., F.R.C.P.Lond., M.P.C., Commissioner of the Board of Control, 66, Victoria Street, London, S.W.1. (*Hon. General Secretary, 1906-12.*) (PRESIDENT.)
1920. Bowen, Tudor David John, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Napsbury Mental Hospital, Napsbury, St. Albans.
1918. Bower, Cedric William, L.M.S.S.A., Joint Medical Officer, Springfield House, near Bedford.
1877. Bower, David, M.D., C.M.Aberd., Springfield House, Bedford. (*Chairman, Parliamentary Committee, 1907-1910.*)
1917. Bowie, Edgar Ormond, L.A.H., D.P.H.Dubl., Dip. Grant Med. Coll. Bombay; County and City Mental Hospital, Burghill, near Hereford.
1900. Bowles, Alfred, M.R.C.S., L.R.C.P.Lond., 10, South Cliff, Eastbourne.
1896. Boycott, Arthur N., M.D.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Herts County Mental Hospital, Hill End, St. Albans, Herts. (*Hon. Sec. for S.-E. Division, 1900-05.*)
1898. Boyle, A. Helen A., M.D.Brux., L.R.C.P.&S.Edin., 9, The Drive, Hove, Brighton.
1891. Braine-Hartnell, George M. P., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, County and City Mental Hospital, Powick, Worcester.
1911. Brander, John, M.B., C.B.Edin., Deputy Medical Superintendent, London County Mental Hospital, Bexley, Kent.
1919. Branthwaite, Robert Welsh, C.B., M.D.Brux., M.R.C.S., L.R.C.P., D.P.H.Lond., Commissioner of the Board of Control, 66, Victoria Street, London, S.W.1.
1905. Brown, Harry Egerton, M.D., Ch.B.Glasg., M.P.C., c/o Digby S. Brown, 106, Hope Street, Glasgow.
1908. Brown, Robert Cunningham, C.B.E.. M.D., B.S.Durh., Ministry of Pensions, Westminster, London, S.W.1.
1908. Brown, R. Dods, M.D., Ch.B., F.R.C.P., Dipl. Psych., D.P.H.Edin., Medical Superintendent, The Royal Asylum, Aberdeen.
1912. Brown, William, M.D., C.M.Glasg., M.P.C., District Medical Officer, Adviser in Lunacy to Bristol Magistrates, 1, Manor Road, Fishponds, Bristol.
1916. Brown, William, D.Sc.Lond., M.A., M.D., B.Ch.Oxon., Wilde Reader in Mental Philosophy, Univ. Oxford; 13, Welbeck Street, W.1.
1893. Bruce, Lewis C., M.C., M.D., F.R.C.P.Edin., M.P.C., Medical Superintendent, District Asylum, Druid Park, Murthly, N.B. (*Co-Editor of Journal 1911-1916; Hon. Sec. for Scottish Division, 1901-1907.*)
1913. Brunton, George Llewellyn, M.D., Ch.B.Edin., Senior Assistant Medical Officer, North Riding Asylum, Clifton, Yorks.
1920. Bryce, William Henderson, M.B., C.M.Edin., Medical Superintendent, Kenlaw House, Colinsburgh, Fife.
1912. Buchanan, William Murdoch, M.B., Ch.B.Glasg., Kirklands Asylum, Bothwell, Lanarkshire. (*Hon. Sec. for Scottish Division from 1920.*)
1908. Bullmore, Charles Cecil, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Medical Superintendent, Flower House, Catford, London, S.E. 6.
1912. Burke, J. D. G., M.B., B.Ch.R.U.I., St. Audry's Hospital, Melton, Suffolk.
1921. Butcher, Walter Herbert, M.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P. Lond., Assistant Medical Officer, City Mental Hospital, Humberstone, Leicester.
1921. Buzzard, Edward Farquhar, M.A., M.D.Oxon., F.R.C.P.Lond., Physician to St. Thomas's Hospital and to the National Hospital for the Paralysed, Queen Square, W.C.; 78, Wimpole Street, London, W.1.
1891. Caldecott, Charles, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Royal Earlswood Institution, Redhill, Surrey.
1921. Caldicott, Charles Holt, M.B.E., M.B.Lond., M.R.C.S., L.R.C.P.Lond., Grantbourne, Chobham.
1894. Campbell, Alfred Walter, M.D., C.M.Edin., M.P.C., Macquarie Chambers, 183, Macquarie Street, Sydney, New South Wales.

1909. Campbell, Donald Graham, M.B., C.M.Edin., "Auchinellan," 12, Reid-haven Street, Elgin.
1914. Campbell, Finlay Stewart, M.D., C.M.Glasg., Deputy Director of Medical Services, Ministry of National Service, Ayr, Scotland.
1897. Campbell, Robert Brown, M.D., C.M., F.R.C.P.Edin., Stirling District Asylum, Larbert. (*Secretary for Scottish Division, 1910-20.*)
1905. Carre, Henry, L.R.C.P. & S.Irel., Woodilee Asylum, Lenzie, Glasgow.
1891. Carswell, John, F.R.F.P.&S.Glasg., L.R.C.P.Edin., J.P., Commissioner, Board of Control, Scotland, 25, Palmerston Place, Edinburgh.
1874. Cassidy, D. M., D.Sc.Edin., M.D., C.M.McGill, F.R.C.S.Edin., Medical Superintendent, County Asylum, Lancaster.
1888. Chambers, James, M.A., M.D.R.U.I., M.P.C., The Priory, Roehampton, London, S.W. 15. (*Co-Editor of Journal 1905-1914, Assistant Editor 1900-05.*) (PRESIDENT, 1913-14.) (Treasurer since 1917.) (Lect. on Ment. Dis. Middlesex Hosp.)
1911. Chambers, Walter Duncanon, M.A., M.D., Ch.B.Edin., M.P.C., Murray House, Perth.
1865. Chapman, Thomas Algernon, M.D.Glasg., L.R.C.S.Edin., F.R.S., F.Z.S., Betula, Reigate.
1915. Cheyne, Alfred William Harper, M.B., Ch.B.Aberd., Assistant Medical Officer, Royal Asylum, Aberdeen.
1917. Chisholm, Percy, L.R.C.P. & S.Edin., L.R.F.P. & S.Glasg., Assistant Medical Officer, Stirling District Asylum, Larbert.
1907. Chislett, Charles G. A., M.B., Ch.B.Glasg., Medical Superintendent, Stoneyetts, Chryston, Lanark.
1921. Cholmeley, Mountague Adye, M.R.C.S., L.R.C.P.Lond., Ministry of Pensions Hospital, Orpington, Kent.
1880. Christie, J. W. Stirling, L.R.C.P.&S.Edin., 21, St. Matthew's Gardens, St. Leonards-on-Sea.
1878. Clapham, Wm. Crochley S., M.D., F.R.C.P.Edin., M.R.C.S.Eng., F.S.S., The Five Gables, Mayfield, Sussex. (*Hon. Sec. N. and M. Division, 1897-1901.*)
1920. Clark, R. M., M.B., C.M.Edin., Medical Superintendent, Whittingham Asylum, Lancashire.
1907. Clarke, Geoffrey, M.D.Lond., Medical Superintendent, London County Mental Hospital, Bexley, Kent.
1907. Clarkson, Robert Durward, B.Sc., M.D., C.M.Edin., F.R.C.P.Edin. (Medical Officer, Scottish National Institute for the Education of Imbecile Children), The Park, Larbert, Stirling.
1892. Cole, Robert Henry, M.D.Lond., F.R.C.P.Lond., 25, Upper Berkeley Street, London, W.1. (*Secretary of Parliamentary Committee, 1912-21, Chairman since 1921.*) (Lect. on Ment. Dis. St. Mary's Hosp.)
1900. Cole, Sydney John, M.A., M.D., B.Ch.Oxon., Medical Superintendent, Wilts County Asylum, Devizes.
1906. Collier, Walter Edgar, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Kent County Mental Hospital, Barming Heath, Maidstone.
1903. Collins, Michael Abdy, O.B.E., M.D., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Kent Mental Hospital, Charlton Down, Kent. (*Hon. General Secretary, 1912-18.*)
1910. Conlon, Thomas Peter, L.R.C.P.&S.Irel., Resident Medical Superintendent, District Asylum, Monaghan.
1921. Connell, Ernest Henry, M.B., Ch.B.Edin., Clinical Assistant, Morningside Royal Asylum, Edinburgh.
1920. Connell, O. G., M.C., L.R.C.P.&S.Irel., Senior Assistant Medical Officer, Norfolk County Mental Hospital, Thorpe, Norwich.
1914. Connolly, Victor Lindley, M.C., M.B., B.Ch.Belf., Assistant Medical Officer, Long Grove Mental Hospital, Epsom, Surrey.
1910. Coombes, Percival Charles, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Netherne House, Coulsdon, Surrey.

1921. Cooper, Alexander, M.A., M.B., Ch.B.Aberd., Junior Assistant Medical Officer, Aberdeen Royal Asylum, Aberdeen.
1905. Cooper, K. D., L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., c/o Leopold & Co. Apollo, Bunder, Bombay.
1903. Cormac, Harry Dove, M.B., B.S.Madras, Medical Superintendent, Parkside House, Macclesfield.
1891. Corner, Harry, M.D.Lond., M.R.C.S., L.R.C.P.Lond., M.P.C., 37, Harley Street, London, W. 1.
1917. Costello, Christopher, M.B., B.Ch.N.U.I., Assistant Medical Officer, Portrane Asylum, Ireland.
1897. Cotton, William, M.A., M.D.Edin., D.P.H., M.P.C., 231, Gloucester Road, Bishopston, Bristol.
1910. Coupland, William Henry, L.R.C.S.&P.E.Un., Medical Superintendent, Royal Albert Institution, Albert House, Haverbreaks, Lancaster.
1913. Court, E. Percy, M.R.C.S., L.R.C.P.Lond., Severalls Mental Hospital, Colchester.
1893. Cowen, Thomas Philip, M.D., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, County Asylum, Rainhill, Lancashire. (Leet. on Ment. Dis. Univ. of Liverpool.)
1911. Cox, Donald Maxwell, M.R.C.S., L.R.C.P.Lond., 2, Royal Park, Clifton, Bristol.
1918. Cox, The Rt. Hon. M. F., LL.D., M.D.R.U.I., F.R.C.P.Irel., Physician, St. Vincent's Hospital, Dublin; Lord Chancellor's Consulting Visitor in Lunacy for County and City of Dublin; 26, Merrion Square, Dublin.
1893. Craig, Sir Maurice, C.B.E., M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., M.P.C., 87, Harley Street, London, W. 1. (*Hon. Secretary of Educational Committee, 1905-8; Chairman of Educational Committee 1912-19.*) (Lect. on Psychol. Med. Guy's Hosp.)
1921. Creagh, Pierce Nagle, L.R.C.P.&S.I., Deputy Commissioner, Medical Services (Neurological), Ministry of Pensions; 142, Lexham Gardens, London, W. 8.
1897. Cribb, Harry Gifford, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Winterton Asylum, Ferryhill, Durham.
1911. Crichtow, Charles Adolphus, M.B., Ch.B.Glasg., Roxburgh District Asylum, Melrose.
1917. Crockett, James, M.D.Edin., D.P.H., Medical Superintendent, Colony of Mercy for Epileptics, Consumption Sanatoria of Scotland, Craigielea, Bridge of Weir.
1904. Cross, Harold Robert, L.S.A.Lond., F.R.G.S., Storthes Hall Asylum, Kirkburton, near Huddersfield.
1915. Crosthwaite, Frederick Douglas, M.B., Ch.B.Edin., D.P.H., Assistant Physician, Pretoria Mental Hospital, South Africa.
1919. Cuthbert, James Harvey, M.B., Ch.B.Edin., Senior Assistant Medical Officer, 63, Eastwood Road, Goodmayes, Essex.
1907. Daniel, Alfred Wilson, B.A., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, London County Mental Hospital, Hanwell, London, W. 7. (*Secretary of Educational Committee since 1920.*)
1895. Davidson, Andrew, M.D., C.M.Aberd., M.P.C., c/o A. Fraser, Esq., J.P., Forres, Scotland.
1921. Davies-Jones, Charles William Saunderson, M.B., Ch.B.Edin., Ashurst Hospital, Littlemore, Oxford.
1891. Davis, Arthur N., L.R.C.P.&S.Edin., Medical Superintendent, County Asylum, Exminster, Devon.
1894. Dawson, William R., O.B.E., B.A., M.D., B.Ch.Dubl., F.R.C.P.Irel., M.P.C., D.P.H., Inspector of Lunatics in Ireland, 7, Ailesbury Road, Dublin. (*Hon. Sec. to Irish Division, 1902-11; PRESIDENT, 1911-12; Co-Editor of the Journal since 1920.*)
1920. Dawson, William Siegfried, M.A., M.B., B.Ch.Oxon., M.R.C.P.Lond., Assistant Medical Officer, Hanwell Mental Hospital, Southall.

1901. De Steiger, Adèle, M.D.Lond., Essex County Mental Hospital, Brentwood, Essex.
1905. Devine, Henry, *O.B.E.*, M.D., B.S., F.R.C.P.Lond., M.R.C.S.Eng., M.P.C., Medical Superintendent, Borough Mental Hospital, Milton, Portsmouth. (*Co-Editor of the Journal since 1920; Assistant Editor 1916-20.*)
1904. Devon, James, F.R.F.P. & S.Glasg., L.R.C.P. & S.Edin., 11, Rutland Square, Edinburgh.
1921. Dick, Alexander, *M.C.*, M.B., Ch.B.Glasg., Assistant Medical Officer, Glasgow District Mental Hospital, Woodilee, Lenzie.
1915. Dillon, Frederick, M.B., Ch.B.Edin., Assistant Medical Officer, Northumberland House, Green Lanes, Finsbury Park, London, N. 4.
1909. Dillon, Kathleen, L.R.C.P.&S.Irel., Assistant Medical Officer, District Asylum, Mullingar.
1905. Dixon, J. Francis, M.A., M.D., B.Ch.Dubl., M.P.C., Medical Superintendent, Borongh Mental Hospital, Humberstone, Leicester.
1879. Dodds, William J., D.Sc., M.D., C.M.Edin., 15, Marina Road, Prestwick, Ayrshire.
1889. Donaldson, William Ireland, B.A., M.D., B.Ch.Dubl., 2, Abbeylands, Killiney, Co. Dublin.
1892. Donelan, John O'Conor, L.R.C.P.&S.Irel., M.P.C., St. Dymphna's, North Circular Road, Dublin (Med. Supt., Richmond Asylum, Dublin). (Lect. on Ment. Dis. Univ. of Dublin.)
1910. Downey, Michael Henry, M.B., Ch.B.Mell., L.R.C.P. & S.Edin., L.R.F.P. & S. Glasg., Medical Superintendent, Parkside Asylum, Adelaide, South Australia.
1919. Drake-Brockman, Henry George, F.R.C.S.Edin., M.R.C.S., L.R.C.P.Lond., The Mental Hospital, Middlesbrough.
1916. Drummond, William Blackley, M.D., C.M.Edin., F.R.C.P.Edin., Medical Superintendent, Baldovan Institution, Dundee.
1921. Drury, Kenneth Kirkpatrick, *M.C.*, M.D., B.Ch.Dubl., Senior Assistant Medical Officer and Deputy Superintendent, County Mental Hospital, Stafford; "Swift Brook," Corporation Street, Stafford.
1907. Dryden, A. Mitchell, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Woodilee Mental Hospital, Lenzie.
1902. Dudgeon, Herbert Wm., M.D., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Khanka Government Asylum, Egypt.
1899. Dudley, Francis, L.R.C.P.&S.Irel., Medical Superintendent, County Asylum, Bodmin, Cornwall.
1920. Duncan, Jessie Galloway, M.B., Ch.B.Glasg., D.P.H.Camb., Visiting M.O., South Side Home for Mental Defectives, Streatham; 33, Heybridge Avenue, Streatham, London, S.W. 16.
1921. Dunlop, George William Cunningham, M.B., Ch.B.Edin., Senior Assistant Medical Officer, District Asylum, Inverness.
1903. Dunston, John Thomas, M.D., B.S.Lond., Commissioner of Mental Disorders and Defective Persons, South Africa, and Medical Superintendent, West Koppies Mental Hospital, Pretoria, South Africa.
1899. Eades, Albert L., L.R.C.P.&S.Irel., Medical Superintendent, North Riding Asylum, Clifton, Yorks.
1906. Eager, Richard, *O.B.E.*, M.D., Ch.B.Aberd., M.P.C., Assistant Medical Officer, The Devon County Mental Hospital, Exminster.
1891. Earls, James Henry, M.D., M.Ch.R.U.I., L.S.A., D.P.H.Lond., M.P.C., Barrister-at-Law, Fenstanton, Christchurch Road, Streatham Hill, London, S.W. 2.
1921. East, Guy R., B.Hy., M.D., B.S., D.P.H.Durh., Medical Superintendent, Northumberland County Asylum, Gosforth.
1907. East, Wm. Norwood, M.D.Lond., M.R.C.S., L.R.C.P.Lond., M.P.C., H.M. Prison, Liverpool; 95, King's Avenue, Clapham Park, S.W.
1895. Easterbrook, Charles C., M.A., M.D., F.R.C.P.Edin., M.P.C., J.P., Physician Superintendent, Crichton Royal Institution, Dumfries.

1895. Edgerley, Samuel, M.A., M.D., C.M.Edin., M.P.C., Medical Superintendent, West Riding Asylum, Menston, nr. Leeds.
1897. Edwards, Francis Henry, M.D.Brx., M.R.C.S., M.R.C.P.Lond., Medical Superintendent, Camberwell House, London, S.E. 5.
1919. Eggleston, Henry, M.B., B.S.Durh., M.P.C., Ministry of Pensions Hospital, Rotherfield Court, Henley-on-Thames.
1901. Elgee, Samuel Charles, *O.B.E.*, L.R.C.P.&S.Irel., Medical Superintendent, Cane Hill Mental Hospital, Coulsdon, Surrey.
1889. Ekins, Frank Ashby, M.D., C.M.Edin., M.P.C., Waingroves Cottage, 121, Rickmansworth Road, Watford, Herts.
1912. Ellerton, John Frederick Heise, M.D.Brx., M.R.C.S.Eng., L.R.C.P. Edin., Rotherwood, Leamington Spa.
1917. Ellis, Vincent C., M.B., B.Ch.Dubl., Assistant Medical Officer, Richmond Asylum, Grangegorman, Dublin.
1908. Ellison, Arthur, M.R.C.S., L.R.C.P.Lond., Deputy Medical Officer, H.M. Prison, Leeds; 10, Sholebroke Avenue, Leeds.
1899. Ellison, F. C., B.A., M.D., B.Ch.Dubl., Resident Medical Superintendent, District Asylum, Castlebar.
1901. Erskine, Wm. J. A., M.D., C.M.Edin., Medical Superintendent, County Mental Hospital, Whitecroft, Newport, I. of W.
1895. Eurich, Frederick Wilhelm, M.D., C.M.Edin., 8, Mornington Villas, Maningham Lane, Bradford.
1894. Eustace, Henry Marcus, B.A., M.D., B.Ch.Dubl., M.P.C., Medical Superintendent, Hampstead and Highfield Private Asylum, Glasnevin, Dublin.
1909. Eustace, William Neilson, L.R.C.S. & P.Irel., Lisonagh, Glasnevin, Co. Dublin.
1918. Evans, A. Edward, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., D.P.H. Liverp. (Inspector, Board of Control), 3, Rotherwick Court, Golders Green, London, N.W. 4.
1918. Evans, Tudor Benson, M.B., Ch.B.Liverp., 184, Upper Warwick Street, Liverpool.
1891. Ewan, John Alfred, M.A. St. And., M.D., C.M.Edin., M.P.C., Greylees, Sleaford, Lincs.

1894. Farquharson, William F., M.D., C.M.Edin., M.P.C., Medical Superintendent, Cumberland and Westmorland Mental Hospital, Garlands, Carlisle.
1921. Farran-Ridge, Clive, M.B., Ch.M.Syd., D.P.M.Lond., Assistant Medical Officer, County Mental Hospital, Stafford.
1907. Farries, John Stothart, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., The Cottage, Hethersgill, Carlisle.
1903. Fennell, Charles Henry, M.A., M.D.Oxon, M.R.C.P.Lond., 5, Penbridge Place, London, W. 2.
1906. Fielding, Saville James, M.B., B.S.Durh., Medical Superintendent, Bethel Hospital, Norwich.
1873. Finch, John E. M., M.A., M.D.Camb., M.R.C.S.Eng., L.S.A.Lond., Homedale, Stoneygate, Leicester.
1889. Finlay, David, M.D., C.M.Glasg., Medical Superintendent, County Asylum, Bridgend, Glamorgan.
1906. Firth, Arthur Harcus, M.A., M.D., B.Ch.Edin., Deputy Medical Superintendent, Worcestershire County Mental Hospital, Bromsgrove, Worcestershire.
1903. Fitzgerald, Alexis, L.R.C.P.&S.Irel., Medical Superintendent, District Asylum, Waterford.
1908. Fitzgerald, James Francis, L.R.C.P.&S.Irel., Assistant Medical Officer, District Asylum, Clonmel, co. Tipperary, Ireland.
1921. Fleming, Gerald William, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Sunderland Mental Hospital, Ryhope, Sunderland.
1904. Fleming, Wilfrid Louis Remi, M.R.C.S., L.R.C.P.Lond., Suffolk House, Pirbright, Surrey.

1894. Fleury, Eleonora Lilian, M.D., B.Ch.R.U.I., Assistant Medical Officer, Richmond Asylum, Dublin.
1902. Forde, Michael J., M.D., B.Ch.R.U.I., Assistant Medical Officer, Richmond Asylum, Dublin.
1911. Forrester, Archibald Thomas William, M.D., B.S.Lond., M.R.C.S., L.R.C.P. Lond., Senior Assistant Medical Officer, Leicester and Rutland Counties Mental Hospital, Narborough.
1916. Forsyth, Charles Wesley, M.D.Lond., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Rubery Hill Mental Hospital, near Birmingham.
1913. Forward, Ernest Lionel, M.R.C.S., L.R.C.P.Lond., Ministry of Pensions, 5, Millbank, S.W.; Eastbury House Hotel, Northwood, Middlesex.
1913. Fothergill, Claude Francis, B.A., M.B., B.Ch.Camb., M.R.C.S., L.R.C.P., Lond.; "Carnosan," Chorley Wood, Herts; and 150, Harley Street, W.1.
1920. Fox, J. Tylor, M.A., M.D., B.Ch.Camb., Medical Superintendent, Lingfield Epileptic Colony; The Homestead, Lingfield, Surrey.
1881. Fraser, Donald, M.D., C.M.Glasg., F.R.F.P. & S.Glas., Connel, Cothal, nr. Aberdeen.
1919. Fraser, Kate, B.Sc., M.D., Ch.B.Glasg., D.P.H., Deputy Commissioner, General Board of Control, Scotland; 25, Palmerston Place, Edinburgh.
1921. Fuller, Hugh Herens Cavendish, M.B., Ch.B.Edin., Medical Officer, Malvern College; "Oakdale," Priory Road, Great Malvern.
1902. Fuller, Lawrence Otway, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Three Counties' Mental Hospital, Arlesey, Beds.
1906. Game, Edward Palmer Steward, M.D.Durh., M.R.C.S., L.R.C.P.Lond., The Coppice, Nottingham.
1912. Garry, John William, M.B., B.Ch.N.U.I., Assistant Medical Superintendent, Clare County Asylum, Ennis, Ireland.
1912. Gavin, Lawrence, M.B., Ch.B., L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Superintendent, Mullingar District Asylum, Ireland.
1896. Geddes, John W., M.B., C.M.Edin., Medical Superintendent, Mental Hospital, Middlesbrough, Yorks.
1892. Gemmel, James Francis, M.B., C.M.Glasg., Tarbat Ness Lodge, Portmahamack, Fearn, Ross-shire.
1919. Gifford, John, B.A.Cape, M.B., Ch.B.Edin., Senior Assistant Medical Officer, Derby County Asylum, Mickleover, Derby.
1921. Gilfillan, John Aitken, M.B., Ch.B.Glasg., D.P.M., Assistant Medical Officer, London County Mental Hospital, Long Grove, Epsom.
1899. Gilfillan, Samuel James, O.B.E., M.A., M.B., C.M.Edin., Medical Superintendent, London County Mental Hospital, Colney Hatch, London, N.11.
1889. Gill, Stanley A., B.A.Dubl., M.D.Durh., M.R.C.S., M.R.C.P.Lond., Shaftesbury House, Formby, Liverpool.
1904. Gillespie, Daniel, M.C., M.D., B.Ch., D.P.M.R.U.I., Wadsley Asylum, near Sheffield.
1921. Gillespie, Robert Dick, M.B., Ch.B.Glasg., Junior Assistant Physician, Royal Asylum, Gartnavel, Glasgow.
1920. Gillis, Kurt, M.B., Ch.B.E.II., Assistant Physician, Mental Hospital, Bloemfontein, O.F.S., South Africa.
1897. Gilmour, John Rutherford, M.B., C.M., F.R.C.P.Edin., M.P.C., Medical Superintendent, West Riding Asylum, Sealehor Park, Burley-in-Wharfedale, Yorks. (*Hon. Sec. N. and M. Division from 1920.*)
1906. Gilmour, Richard Withers, M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Homewood House, West Meon, Hants.
1878. Glendinning, James, M.D.Glasg., L.R.C.S.Edin., Lyndhurst Avenue Road, Abergavenny.
1897. Good, Thomas Saxty, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Ashurst Mental Hospital, Littlemore, Oxford.

1889. Goodall, Edwin, *C.B.E.*, M.D., B.S., F.R.C.P.Lond., M.P.C., Medical Superintendent, City Mental Hospital, Cardiff.
1918. Goodfellow, Thomas Ashton, B.Sc., M.D.Lond., M.R.C.S., L.R.C.P.Lond., 60, Palatine Road, West Didsbury, Manchester.
1920. Gordon, George, M.B., Ch.B.Glasg., Neurologist, Ministry of Pensions; c/o Holt & Co., 3, Whitehall Place, London, S.W. 1.
1899. Gordon, James Leslie, M.D., C.M.Aberd., Karaissi, Caterham, Surrey.
1901. Gostwyck, C. H. G., M.B., Ch.B., F.R.C.P.Edin., M.P.C., Dipl. Psych., Stirling District Asylum, Larbert.
1914. Graham, Norman Bell, *M.C.*, B.A.R.U.I., M.B., B.Ch.Bell., D.P.H., Assistant Medical Officer, Villa Colony, Purdysburn, Belfast.
1894. Graham, Samuel, L.R.C.P.Lond., Resident Medical Superintendent, District Asylum, Antrim.
1918. Graham, Samuel John, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Resident Medical Superintendent, Villa Colony Asylum, Purdysburn, Belfast.
1908. Graham, William S., M.B., B.Ch.R.U.I., Senior Assistant Medical Officer, Somerset and Bath Asylum, Cottford, near Taunton.
1921. Grant, Alastair Robertson, M.B., Ch.B., Assistant Medical Officer, County Asylum, Whittingham, near Preston.
1915. Graves, T. Chivers, B.Sc., M.D., B.S.Lond., F.R.C.S.Eng., Medical Superintendent, Rubery Hill Mental Hospital, nr. Birmingham.
1916. Gray, Cyril, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Newcastle City Mental Hospital, Gosforth, Newcastle-on-Tyne.
1921. Gray, Joseph Anthony Wenceslaus Pereira, M.D.Brx., M.R.C.S., L.R.C.P.Lond., Medical Officer, Exeter Poor Law Institution; Surgeon, Exeter Police; Visitor of Licensed Houses under Lunacy and Mental Deficiency Acts; 3, Northernhay Place, Exeter.
1909. Greene, Thomas Adrian, L.R.C.S.&P.Irel., J.P., Medical Superintendent, District Asylum, Carlow.
1901. Grills, Galbraith Hamilton, M.D., B.Ch.R.U.I., Dipl. Psych., Medical Superintendent, County Mental Hospital, Chester.
1916. Grimby, Alan F., M.A., M.D., B.Ch.Dubl., Assistant Medical Officer, Severalls Mental Hospital, Colchester, Essex; 168, Rock Avenue, Gillingham, Kent.
1894. Gwynn, Charles Henry, M.D., C.M.Edin., M.R.C.S.Eng., co-Licensee, St. Mary's House, Whitchurch, Salop.
1894. Halsted, Harold Cecil, M.D.Durh., M.R.C.S., L.R.C.P.Lond., Manor Road, Selsey, Sussex.
1920. Hancock, Allen Coulter, *M.C.*, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Cane Hill Mental Hospital, Coulsdon, Surrey.
1920. Harding, Edward Palmer, L.R.C.P.&S.Irel., Assistant Medical Officer, East Riding Mental Hospital, Beverley, Yorks.
1920. Harper, R. Sydney, M.R.C.S., L.R.C.P.Lond., F.R.M.S., Neurologist in Charge Psycho-Therapeutic Clinic, Ministry of Pensions, Brighton; 4, Adelaide Crescent, Hove, Sussex.
1904. Harper-Smith, George Hastie, M.A., M.D.Camb., M.R.C.S., L.R.C.P. Lond. (Senior Assistant Medical Officer, Brighton County Mental Hospital, Haywards Heath), Fir Cottage, Haywards Heath, Sussex.
1898. Harris-Liston, L., M.D.Brx., M.R.C.S., L.R.C.P.Lond., L.S.A., Middleton Hall, Middleton St. George, Co. Durham.
1905. Hart, Bernard, M.D.Lond., M.R.C.S., L.R.C.P.Lond., 81, Wimpole Street, London, W. 1, and Northumberland House, Finsbury Park, London, N. 4. (Lect. on Ment. Dis. Univ. Coll. Hosp.).
1886. Harvey, Bagenal Crosbie, L.R.C.P.&S.Edin., L.A.H.Dubl., Resident Medical Superintendent, District Asylum, Clonmel, Ireland.
1892. Haslett, William John H., M.R.C.S., L.R.C.P.Lond., M.P.C., Resident Medical Superintendent, Halliford House, Sunbury-on-Thames.
1890. Hay, J. F. S., M.B., C.M.Aberd., Inspector-General of Asylums for New Zealand, Government Buildings, Wellington, New Zealand.
1900. Haynes, Horace E., M.R.C.S.Eng., L.S.A., J.P., Littleton Hall, Brentwood, Essex.

1920. Haynes, Horace Guy Lankester, M.R.C.S., L.R.C.P.Lond., Littleton Hall, Brentwood, Essex.
1920. Heal, James Gordon Freeman, M.D., C.M., Dalhousie, L.M.S., N.Scotia, Guysborough, Nova Scotia, Canada.
1911. Heffernan, P., I.M.S., B.A., M.B., B.Ch.C.U.I., Rangemoor, Bakewell, Derby.
1920. Henderson, Cyril John, M.B.Durh., Assistant Medical Officer, The Royal Albert Institution for the Feeble-Minded, Lancaster.
1916. Henderson, David Kennedy, M.D., Ch.B.Edin., F.R.F.P.&S.Glasg., 17, Whittingham Drive, Kelvinside, Glasgow.
1905. Henderson, George, M.A., M.B., Ch.B.Edin., 25, Commercial Road, Peckham, London, S.E. 15.
1877. Hetherington, Charles E., B.A., M.B., M.Ch.Dubl., St. Lawrence Hill, Londonderry, Ireland.
1877. Hewson, R. W., L.R.C.P.&S.Edin., Medical Superintendent, Coton Hill Hospital, Stafford.
1914. Hewson, R. W. Dale, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Coton Hill Hospital, Stafford.
1912. Higson, William Davies, M.B., Ch.B.Liverp., 21, Walton Park, Liverpool.
1882. Hill, H. Gardiner, M.R.C.S.Eng., L.S.A., Pentillie, Leopold Road, Wimbledon Park, London, S.W.19.
1920. Hills, T. W. S., M.A., B.Ch.Camb., L.S.A., Woodside, Kings Langley, Herts.
1914. Hills, Harold William, B.Sc., M.B., B.S.Lond., M.R.C.S., M.R.C.P.Lond., D.P.M., The Rittle House, Gerrards Cross, Bucks.
1909. Hodgson, Harold West, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Severalls Mental Hospital, Colchester.
1908. Hogg, Archibald, M.B., Ch.B.Glasg., 54, High Street, Paisley, N.B.
1900. Holländer, Bernard, M.D.Freib., M.R.C.S., L.R.C.P.Lond., 57, Wimpole Street, London, W.1.
1920. Hooper, Reginald Arthur, M.B., B.S.Durh., Assistant Medical Officer, Netherne Mental Hospital, Coulsdon, Surrey.
1903. Hopkins, Charles Leighton, B.A., M.B., B.Ch.Camb., Medical Superintendent, York City Asylum, Fulford, York.
1914. Horne, Laura Katherine, M.B., Ch.B.Edin., Public Health Dept., St. James' Street, Burnley, Lancs.
1918. Horton, Wilfred Winnall, M.D., C.M.Edin., Medical Superintendent, Wye House, Buxton.
1894. Hotchkis, Robert D., M.A.Glasg., M.D., B.S.Durh., M.R.C.S., L.R.C.P. Lond., M.P.C., Renfrew District Asylum, Dykebar, Paisley, N.B.
1912. Hughes, Frank Percival, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., The Grove, Pinner, Middlesex.
1900. Hughes, Percy T., M.B., C.M.Edin., D.P.H., Medical Superintendent, Worcestershire County Mental Hospital, Barnesley Hall, Bromsgrove. (Lect. on Ment. Dis. Univ. of Birmingham.)
1904. Hughes, William Stanley, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Salop County Asylum, Bicton Heath, Shrewsbury.
1897. Hunter, David, M.A., M.B., B.Ch.Camb., L.S.A., Medical Superintendent, The Coppice, Nottingham. (*Secretary for S.E. Division 1910-1913.*)
1912. Hunter, George Yeates Cobb, I.M.S., M.R.C.S., L.R.C.P.Lond., M.P.C., c/o Messrs. Grindlay & Co., 54, Parliament Street, London, S.W.1.
1904. Hunter, Percy Douglas, M.R.C.S., L.R.C.P.Lond., Three Counties Mental Hospital, Arlesey, Beds.
1911. Hutton, Isabel Emslie, M.D., Ch.B.Edin., "Sir Tristram's" Park Road, Camberley; and Forum Club, 6, Grosvenor Place, S.W.
1888. Hyslop, Theo. B., M.D., C.M.Edin., M.R.C.P., L.R.C.S., F.R.S.Edin., M.P.C., 5, Portland Place, London, W.1.

1915. Ingall, Frank Ernest, F.R.C.S.Eng., L.R.C.P.Lond., D.P.H., Public Health Offices, Clarence Street, Southend-on-Sea.
1908. Inglis, J. P. Park, M.B., Ch.B.Edin., Assistant Medical Officer, Caterham Mental Hospital, Caterham, Surrey.
1906. Irwin, Peter Joseph, L.R.C.P.&S.Irel., Medical Superintendent, District Asylum, Limerick.
1920. Jackson, John Luke, M.B., B.Ch.Belf., Senior Assistant Medical Officer and Deputy Superintendent, Hants County Asylum, Knowle, Fareham.
1914. James, George William Blomfield, M.C., M.D., B.S.Lond., Moorcroft Cottage, Hillingdon, Uxbridge.
1921. Jardine, Maurice Kirkpatrick, M.B., Ch.B.Edin., Assistant Medical Officer, Fife and Kinross District Asylum, Cupar, Fife.
1908. Jeffrey, Geo. Rutherford, M.D., Ch.B.Glasg., F.R.C.P.Edin., M.P.C., F.R.S.Edin., Medical Superintendent, Bootham Park, York.
1893. Johnston, Gerald Herbert, L.R.C.P.&S.Edin., L.R.F.P.&S.Glas., Brooke House, Upper Clapton, London, N. 5.
1905. Johnston, Thomas Leonard, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Medical Superintendent, Bracebridge Asylum, Lincoln.
1912. Johnstone, Emma May, L.R.C.P. & S.Edin., L.R.F.P.&S.Glasg., M.P.C., D.P.M.Camb., University Club for India, 2, Audley Square, W. 1.
1878. Johnstone, J. Carlyle, M.D., C.M.Glasg., Stourton Hall, Stourbridge.
1903. Johnstone, Thomas, M.D., C.M.Edin., M.R.C.P.Lond., Annandale, Harrogate.
1921. Jones, Ernest William, M.D.Lond., M.R.C.S., L.R.C.P., The Manor House, Aldridge, Walsall, Staffs.
1879. Kay, Walter S., M.D., C.M.Edin., M.R.C.S.Eng., The Grove, Starbeck, Harrogate.
1886. Keay, John, C.B.E., M.D., C.M.Glasg., F.R.C.P.Edin., Medical Superintendent, Bangour Village, Uphall, Linlithgowshire. (PRESIDENT, 1918.) (Lect. on Ment. Dis. Sch. of Med. Roy. Coll. Edinburgh.)
1909. Keith, William Brooks, M.C., M.D., Ch.B.Aberd., M.P.C., Senior Assistant Medical Officer, The Orchard, Knaphill, Surrey. (*Secretary Parliamentary Committee from 1921*.)
1907. Keene, George Henry, M.D., B.Ch.Dubl., 14, Palmerston Park, Dublin.
1899. Kennedy, Hugh T. J., L.R.C.P.&S.Irel., Medical Superintendent, District Asylum, Enniscorthy, Co. Wexford.
1920. Kerr, Felix Arthur, M.B., Ch.B.Glasg., Assistant Medical Officer, Rubery Hill Mental Hospital, Birmingham.
1897. Kerr, Hugh, M.A., M.D.Glasg., Medical Superintendent, Bucks County Mental Hospital, Stone, Aylesbury, Bucks.
1902. Kerr, Neil Thomson, M.B., C.M.Edin., J.P., Medical Superintendent, Lanark District Asylum, Hartwood, Lanarkshire.
1920. Key, Gordon James, M.B., Ch.B.Aberd., Assistant Physician, Mental Hospital, Pretoria, Transvaal, South Africa.
1897. Kidd, Harold Andrew, C.B.E., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Graylingwell Mental Hospital, Chichester.
1920. Kimber, William Joseph Teil, M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.
1903. King, Frank Raymond, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Peckham House, Peckham, London, S.E.
1902. King-Turner, A. C., M.B., C.M.Edin., The Retreat, Fairford, Gloucestershire.
1915. Kirwan, Richard R., M.B., B.Ch.R.U.I., Assistant Medical Officer, West Riding Asylum, Menston, Leeds.
1921. Kitchen, John Edward, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Second Assistant Medical Officer, Storthes Hall Asylum, Kirkburton, near Huddersfield.
1919. Knight, Mary Reid, M.A., M.B., Ch.B.Glasg., Assistant Medical Officer, Paisley District Asylum, Riccarton, Paisley, Scotland.
1903. Kough, Edward Fitzsimons, B.A., M.B., B.Ch.Dubl., Senior Assistant Medical Officer, County Asylum, Gloucester.

1898. Labey, Julius, M.R.C.S., L.R.C.P., L.S.A.Lond., Medical Superintendent, Public Asylum, Jersey.
1902. Langdon-Down, Percival L., M.A., M.B., B.Ch.Camb., Normansfield, Hampton Wick, Middlesex.
1896. Langdon-Down, Reginald L., M.A., M.B., B.Ch.Camb., M.R.C.P.Lond., Normansfield, Hampton Wick.
1919. Langton, Peregrine Stephen Brackenbury, M.B., B.S., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, York City Asylum, Fulford, York.
1914. Ladell, R. G. Macdonald, M.B., Ch.B.Vict., Goldieslie, Wylde Green, Birmingham.
1919. Latham, Oliver, M.B., C.M.Syd., Pathologist, Lunacy Department, University, Sydney, N.S.W.
1902. Laval, Evariste, M.B., C.M.Edin., The Guildhall, Westminster, London, S.W. 1.
1898. Lavers, Norman, M.D.Brx., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Bailbrook House, Bath.
1892. Lawless, George Robert, F.R.C.S., L.R.C.P.Irel., Medical Superintendent, District Asylum, Armagh.
1870. Lawrence, Alexander, M.A., M.D., C.M.Aberd., 26, Hough Green, Chester.
1883. Layton, Henry A., M.R.C.S., L.R.C.P.Edin., 26, Kimbolton Road, Bedford.
1915. Leech, H. Brougham, B.A., M.D., B.Ch.Dubl., Senior Assistant Medical Officer, County Asylum, Hatton, Warwick.
1909. Leech, John Frederick Wolseley, B.A., M.D., B.Ch.Dubl., Assistant Medical Officer, Wilts County Asylum, Devizes.
1899. Leeper, Richard R., F.R.C.S., L.R.C.P.Irel., M.P.C., Medical Superintendent, St. Patrick's Hospital, Dublin. (*Hon. Sec. to the Irish Division since 1911.*)
1883. Legge, Richard J., M.D.R.U.I., L.R.C.S.Edin., 8, Bath Place, Cheltenham.
1906. Leggett, William, B.A., M.D., B.Ch.Dubl., Smithston Asylum, Greenock, Scotland.
1916. Lewis, Edward, L.R.C.P.&S.Edin., F.R.F.P.&S.Glasg., Drymma Hall, Skewen, nr. Neath, Glamorgan.
1920. Lilley, George Austen, M.D.Camb., M.R.C.S., L.R.C.P.Lond. Assistant Medical Officer, London County Mental Hospital, Hanwell, W. 7.
1908. Littlejohn, Edward Salteine, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Manor Cert. Institution for Mental Defectives, Epsom.
1921. Livesay, A. W. B., Surg.-Cdr. R.N., M.B., C.M.Edin., F.R.C.S.E., Royal Naval Mental Hospital, Great Yarmouth.
1920. Lloyd-Dodd, E. H. H., L.R.C.P.&S.Irel., Assistant Medical Officer, Leavesden Mental Hospital; Woodside, Leavesden, Watford, Herts.
1898. Lord, John R., C.B.E., M.B., C.M.Edin., Medical Superintendent, Horton Mental Hospital, Epsom. (*Co-Editor of Journal since 1911; Assistant Editor of Journal, 1900-11.*)
1906. Lowry, James Arthur, M.D., B.Ch.R.U.I., Medical Superintendent, Surrey County Asylum, Brookwood.
1904. Lyall, C. H. Gibson, L.R.C.P.&S.Edin., City Mental Hospital, Humberstone, Leicester.
1872. Lyle, Thomas, M.D., C.M.Glasg., 34, Jesmond Road, Newcastle-on-Tyne.
1920. McAlister, William, M.A., M.B., Ch.B.Edin., Assistant Physician, Royal Asylum, Morningside, Edinburgh.
1906. Macarthur, John, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Colney Hatch Mental Hospital, London, N. 11. (Lect. on Psychol. Med. N.E. Lond. Post-Grad. Coll.)
1880. MacBryan, Henry C., L.R.C.P.&S.Edin., Kingsdown House, Box, Wilts.

1900. McClintock, John, L.R.C.P.&S.Edin., Resident Medical Superintendent, Grove House, All Stretton, Church Stretton, Salop.
1920. McCowan, Peter Knight, M.B., Ch.B.Edin., Assistant Medical Officer, Cane Hill Mental Hospital, Coulsdon, Surrey.
1921. McCutcheon, Archibald Munn, M.B., Ch.B.Glasg., Resident Medical Officer, Monyhull Colony, King's Heath, Birmingham.
1901. MacDonald, James H., M.B., Ch.B., F.R.F.P.&S.Glasg., Govan District Asylum, Hawkhead, Paisley, N.B. (Lect. on Psychol. Med. Univ. of Glasgow.)
1884. MacDonald, P. W., M.D., C.M.Aberd., Grasmere, Radipole, Weymouth. (*First Hon. Sec. S.W. Div. 1894 to 1905.*) (PRESIDENT, 1907-8.)
1911. MacDonald, Ranald, M.D., Ch.B.Edin., Assistant Medical Officer, London County Mental Hospital, Colney Hatch, New Southgate.
1905. MacDonald, William Fraser, M.B., Ch.B.Edin., M.P.C., 96, Polworth Terrace, Edinburgh.
1905. McDougall, Alan, M.D., Ch.B.Vict., M.R.C.S., L.R.C.P.Lond., Medical Director, The David Lewis Colony, Sandle Bridge, near Alderley Edge, Cheshire.
1906. McDowall, Colin Francis Frederick, M.D., B.S.Durh., Medical Superintendent, Ticehurst House, Ticehurst, Sussex.
1870. McDewall, Thomas W., M.D., L.R.C.S.Edin., "Burwood," Wadhurst, Sussex. (PRESIDENT, 1897-8.)
1895. Macfarlane, Neil M., M.D., C.M.Aberd., Deputy Principal Medical Officer, Maseru, Basutoland, South Africa.
1921. McGrath, Matthew Joseph, M.B., B.Ch., D.P.M., Assistant Medical Officer, West Riding Asylum, Wakefield; 12, Lansdowne Terrace, Wakefield.
1902. McGregor, John, M.B., Ch.B.Edin., Senior Assistant Medical Officer, County Asylum, Bridgend, Glam.
1917. McIver, Colin, I.M.S., M.R.C.S., L.R.C.P.Lond., c/o Messrs. Grindlay & Co., Post Box 93, Bombay, India.
1921. McKail, Robert Buchanan Forbes, M.B., Ch.B.Glasg., Senior Assistant Medical Officer, "Calderstones" Certified Institution for Mental Defectives, Whalley, near Blackburn.
1914. Mackay, Magnus Ross, M.D., Ch.B.Edin., Newport Borough Mental Hospital, Caerleon, Mon.
1917. Mackay, Norman Douglas, B.Sc., M.D., Ch.B., D.P.H.St. And., Dall-Avon, Aberfeldy, Perthshire.
1911. Mackenzie, John Cosserat, M.B., Ch.B.Edin., Burntwood Mental Hospital, near Lichfield.
1891. Mackenzie, Henry J., M.B., C.M.Edin., M.P.C., Assistant Medical Officer, The Retreat, York.
1903. Mackenzie, Theodore Charles, M.D., Ch.B., F.R.C.P.Edin., M.P.C., Medical Superintendent, District Asylum, Inverness.
1921. Mackie, George, M.B., Ch.B.Edin., Assistant Medical Officer, Scalebor Park, Burley-in-Wharfedale.
1920. McLachlan, Jessie Brown, M.B., Ch.B.Glasg., D.P.H.Camb., Assistant Medical Officer, Stirling District Asylum, Larbert, N.B.
1921. Macleod, Neil, M.B., Ch.B.Edin., Assistant Physician, Royal Edinburgh Asylum (Craig House), Morningside Drive, Edinburgh.
1904. Macnamara, Eric Danvers, M.A., M.D., B.Ch.Camb., F.R.C.P.Lond., 87, Harley Street, London, W. 1. (Lect. on Psychol. Med. Charing Cross Hosp.)
1910. MacPhail, Hector Duncan, M.A., M.D., Ch.B.Edin., Assistant Medical Officer, City Asylum, Gosforth, Newcastle-on-Tyne.
1882. Macphail, S. Rutherford, M.D., C.M.Edin., New Saughton Hall, Polton, Midlothian.
1901. McRae, G. Douglas, M.D., C.M., F.R.C.P.Edin., J.P., Medical Superintendent, Glengall House, Avv., N.B. (*Co-Editor of the Journal since 1920; Assistant Editor 1916-20.*)
1894. McWilliam, Alexander, M.A., M.B., C.M.Aberd., Waterval, Odiham, Winchfield, Hants.

1908. Mapother, Edward, M.D., B.S.Lond., F.R.C.S.Eng., M.R.C.P.Lond., Deputy Medical Superintendent, Long Grove Mental Hospital, Epsom.
1903. Marnan, John, B.A., M.B., B.Ch.Dubl., Medical Superintendent, County Asylum, Gloucester.
1896. Marr, Hamilton C., M.D., C.M., F.R.F.P.&S.Glasg., M.P.C., Commissioner in Lunacy (10, Succoth Avenue, Edinburgh). (*Hon. Sec. Scottish Division, 1907-1910.*)
1905. Marshall, Robert Macnab, M.D., Ch.B.Glasg., M.P.C., 2, Clifton Place, Glasgow.
1908. Martin, Henry Cooke, M.B., Ch.B.Edin., Assistant Medical Officer, Newport Borough Asylum, Caerleon.
1896. Martin, James Charles, L.R.C.S. & P.Irel., J.P., Assistant Medical Officer District Asylum, Letterkenny, Donegal.
1908. Martin, James Ernest, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, London County Mental Hospital, Hanwell, W. 7.
1907. Martin, Mary Edith, L.R.C.P.&S.Edin., L.R.F.P.&S.Glas., L.S.A.Lond., M.P.C., 11, The Drive, Hove, Sussex.
1914. Martin, Samuel Edgar, M.B., B.Ch.Edin., Barrister-at-Law, Medical Officer, Fisherton House, Salisbury.
1911. Martin, William Lewis, O.B.E., M.A., B.Sc., M.B., C.M., D.P.H.Edin., M.P.C., Dipl. Psych., Certifying Physician in Lunacy, Edinburgh Parish Council, 56, Bruntsfield Place, Edinburgh.
1921. Masefield, William Gordon, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Severalls Mental Hospital, Colchester.
1911. Mathieson, James Moir, M.B., Ch.B.Aberd., Assistant Medical Officer, Woodvale, South Yorks Asylum, Sheffield; 172, Whitham Road, Broomhill, Sheffield.
1912. Melville, William Spence, M.B., Ch.B.Glasg., National Bank of Scotland, 37, Nicholas Lane, E.C.
1890. Menzies, William F., B.Sc., M.D.Edin., F.R.C.P.Lond., Medical Superintendent, Stafford County Mental Hospital, Cheddleton, near Leek. (PRESIDENT, 1920-21.)
1877. Merson, John, M.A., M.D., C.M.Aberd., Medical Superintendent, Borough Asylum, Hull.
1893. Middlemass, James, M.A., B.Sc., M.D., C.M., F.R.C.P.Edin., M.P.C., Medical Superintendent, Sunderland Boro' Mental Hospital, Ryhope. (Lect. on Psychol. Med. College of Medicine, Univ. of Durham.)
1910. Middlemiss, James Ernest, M.R.C.S., L.R.C.P.Lond.; 131, North Street, Leeds.
1887. Miller, Alfred, M.B., B.Ch.Dubl., Medical Superintendent, Hatton Asylum, Warwick. (*Registrar since 1902.*)
1912. Miller, Richard, M.B., B.Ch.Dubl., Stock, Ingatestone.
1893. Mills, John, M.B., B.Ch., D.M.D., R.U.I., Medical Superintendent, District Asylum, Ballinasloe, Ireland.
1911. Moll, Jan. Marius, Doc. in Arts and Med, Utrecht Univ., L.M.S.S.A. Lond., M.P.C., Box 2587, Johannesburg, South Africa.
1921. Monahan, Robert Vincent, M.B., B.Ch., N.U.I., Assistant Medical Officer, Northumberland County Asylum, Morpeth.
1910. Monnington, Richard Caldicott, M.D., Ch.B., D.P.H.Edin., D.P.M., Neurologist, Ministry of Pensions, 33, New Street, Salisbury.
1915. Mourad-Krohn, G. H., B.A., B.S.Christiania, M.R.C.S., M.R.C.P.Lond., M.P.C., Lecturer in Neurology at the University and Physician to the Neurological Section of Rikshospitalet, Christiania, Norway.
1899. Moore, Wm. D., M.D., M.Ch.R.U.I., Medical Superintendent, Holloway Sanatorium, Virginia Water, Surrey.
1917. Morris, Bedlington Howel, M.B., B.S.Durh., Inspector-General of Hospitals, South Australia; Pembroke Street, College Park, St. Peter's, S. Australia.
1896. Morton, W. B., M.D., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Wonford House, Exeter.

1896. Mott, Sir Frederick W., *K.B.E.*, LL.D.Edin., M.D., B.S., F.R.C.P.Lond., F.R.S., Pathologist to the London County Mental Hospitals, 25, Nottingham Place, Marylebone, London, W. 1.
1896. Mould, Gilbert E., M.R.C.S., L.R.C.P.Lond., The Grange, Rotherham, Yorks.
1897. Mould, Philip G., M.R.C.S., L.R.C.P.Lond., Overdale, Whitefield, Manchester.
1914. Moyes, John Murray, M.B., Ch.B.Edin., D.P.M.Leads. Tue Brook Villa, Liverpool, E.
1919. Mules, Annie Shortridge, M.R.C.S., L.R.C.P.Lond., House Physician, Devon and Exeter Hospital; Court Hall, Kenton, near Exeter.
1907. Mules, Bertha Mary, M.D., B.S.Durb., Court Hall, Kenton, S. Devon.
1911. Muncaster, Anna Lilian, M.B., B.Ch.Edin., 8, Craylockhart Terrace, Edinburgh.
1917. Munro, Robert, M.B., Ch.B.Aberd., Assistant Medical Superintendent, Essex Hall, Colchester.
1919. Murnane, John, L.R.C.P. & S.Irel. & L.M., Portroe, Nenagh, Co. Tipperary.
1916. Murray, Jessie M., M.D., B.S.Durb., 14, Endsleigh Street, Tavistock Square, London, W.C. 1.
1909. Myers, Charles Samuel, M.A., D.Sc., M.D., B.Ch.Camb., M.R.C.S., L.R.C.P.Lond., F.R.S., Gonville and Caius College, Cambridge.
1903. Navarra, Norman, M.R.C.S., L.R.C.P.Lond., City of London Mental Hospital, near Dartford, Kent.
1910. Neill, Alex. W., M.D., Ch.B.Edin., Warneford Mental Hospital, Oxford.
1903. Nelis, William F., M.D.Durb., L.R.C.P.Edin., L.R.F.P.&S.Glasg., Medical Superintendent, Newport Borough Mental Hospital, Caerleon, Mon.
1920. Nicol, William Drew, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, London County Mental Hospital, Hanwell, London, W. 7.
1921. Nicoll, James, M.D.Edin., D.P.H.Lond., Medical Superintendent, Fountain Mental Hospital, Tooting Grove, S.W. 17.
1869. Nicolson, David, C.B., M.D., C.M.Aberd., M.R.C.P.Edin., F.S.A.Scot., Blythewood, Camberley, Surrey. (PRESIDENT, 1895-6)
1920. Nix, Sidney, M.D., B.S.Durb., L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Senior Assistant Medical Officer, Graylingwell Mental Hospital, Chichester.
1888. Nolan, Michael J., L.R.C.P.&S.Irel., M.P.C. Medical Superintendent, District Asylum, Bownpatrick.
1913. Nolan, James Noël Green, B.A., M.D., B.Ch.Dubl., Hellingly Mental Hospital, Sussex.
1909. Norman, Hubert James, M.B., Ch.B., D.P.H.Edin. (Assistant Medical Officer, Camberwell House Asylum, Peckham Road, London, S.E. 5), 51, Crystal Palace Park Road, Sydenham, London, S.E. 26.
1920. Novis, Rupert Stanley, B.Sc., M.R.C.S., L.R.C.P.Lond., Fountain Mental Hospital, Tooting Grove, S.W. 17.
1903. O'Doherty, Patrick, B.A., M.B., B.Ch.R.U.I., District Asylum, Omagh.
1918. Ogilvie, William Mitchell, M.B., C.M.Aberd., Medical Superintendent, Ipswich Mental Hospital, Ipswich.
1901. Ogilvy, David, B.A., M.D., B.Ch.Dubl., Medical Superintendent, London County Mental Hospital, Long Grove, Epsom, Surrey.
1911. Oliver, Norman H., M.R.C.S., L.R.C.P.Lond., Barrister-at-Law, Officer in Charge, No. 4 Special Hospital for Officers, Latchmere, Ham Common, Surrey.
1892. O'Mara, Francis, L.R.C.P.&S.Irel., District Asylum, Ennis, Ireland.
1920. O'Neill, Arthur, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Napsbury Mental Hospital, Napsbury, St. Albans.
1902. Orr, David, M.D., C.M.Edin., M.P.C., Deputy Medical Superintendent, County Asylum, Prestwich, Lancs.
1910. Orr, James H. C., M.D., Ch.B.Edin., Midlothian Asylum, Rosslyn Castle.

1899. Osburne, Cecil A. P., F.R.C.S., L.R.C.P.Edin., The Grove, Old Catton, Norwich.
1914. Osburne, John C., M.B., B.Ch.N.U.I., Assistant Medical Officer, Lindville, Cork.
1890. Oswald, Landel R., M.B., C.M.Glasg., M.P.C., Physician Superintendent, Royal Asylum, Gartnavel, Glasgow. (*Lect. on Ins. Univ. of Glasgow.*)
1916. Overbeck-Wright, Alexander William, M.D., Ch.B.Aberd., M.P.C., D.P.H., Superintendent, Asylum House, Agra, U. P., India. *Address 12, Rubislaw Terrace, Aberdeen.*
1905. Paine, Frederick, M.D.Brux., M.R.C.S., M.R.C.P.Lond., Claybury Mental Hospital, Woodford Bridge, Essex.
1898. Parker, William Arnot, M.B., C.M.Glasg., M.P.C., Medical Superintendent, Gartloch Asylum, Gartcosh, N.B.
1920. Parkin, George Gray, M.B., Ch.B.Vict., Deputy Medical Superintendent, Cheshire County Mental Hospital, Parkside, Macclesfield.
1920. Parnis, Henry William, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, London County Mental Hospital, Colney Hatch, N. 11.
1898. Pasmore, Edwin Stephen, M.D., M.R.C.P.Lond., Chelsham House, Warlingham, Surrey.
1916. Patch, Charles James Lodge, M.C., Capt. I.M.S., L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., c/o Messrs. King, King & Co., P.O. Box 110, Bombay, India.
1899. Patrick, John, M.B., Ch.B.R.U.I., Medical Superintendent, District Asylum, Omagh, Ireland.
1907. Peacock, George Ernest, M.D., B.S.Lond., M.R.C.S., L.R.C.P.Lond., M.P.C., Medical Superintendent, Dorset County Mental Hospital, Herrison, Dorchester.
1910. Pearn, Oscar Phillips Napier, M.R.C.S., L.R.C.P., L.S.A.Lond., Cane Hill Mental Hospital, Coulsdon, Surrey.
1915. Pennant, Dyfrig Huws, D.S.O., M.R.C.S., L.R.C.P.Lond., Penydr, Saundersfoot, Pembrokeshire.
1913. Penny, Robert Augustus Greenwood, M.R.C.S., L.R.C.P.Lond., Devon County Asylum, Exminster.
1920. Penson, John Frederick, M.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Long Grove Mental Hospital, Epsom.
1893. Perceval, Frank, M.R.C.S., L.R.C.P.Lond., Medical Superintendent County Asylum, Prestwich, Manchester.
1878. Philipps, Sutherland Rees, M.D., C.M.Q.U.I., F.R.G.S., Mont Estoril, Belle Vue Road, Paignton.
1908. Phillips, John George Porter, M.D., B.S.Lond., M.R.C.S., M.R.C.P.Lond., M.P.C., Resident Physician and Superintendent, Bethlem Royal Hospital, Lambeth, London, S.E. 1. (*Lect. on Ment. Path., London School of Med. for Women.*) (*Secretary of Educational Committee, 1913-20.*)
1910. Phillips, John Robert Parry, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, City Asylum, Fishponds, Bristol.
1906. Phillips, Nathaniel Richard, M.D.Brux., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, County Asylum, Abergavenny, Monmouthshire.
1905. Phillips, Norman Routh, M.D.Brux., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, St. Andrew's Hospital, Northampton.
1921. Phillips, Philip Gordon, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Medical Superintendent, Ministry of Pensions Neurological Hospital, Oulton Hall, Woodlesford, near Leeds.
1891. Pierce, Bedford, M.D., F.R.C.P.Lond., York. (*Hon. Secretary N. and M. Division 1900-S.*) (*PRESIDENT, 1919.*)
1888. Pietersen, J. F. G., M.R.C.S., L.R.C.P.Lond., Ashwood House, Kingswinford, near Dudley, Stafford.
1896. Planck, Charles, M.A.Camb., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Brighton County Mental Hospital, Haywards Heath.

1912. Plummer, Edgar Curnow, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Resident Licensee and Acting Medical Superintendent, Bailbrook House, Bath.
1889. Pope, George Stevens, L.R.C.P.&S.Edin., L.R.F.P.&S.Glasg., Heigham Hall, Norwich.
1913. Potts, William A., M.A.Camb., M.D.Edin.&Birm., M.R.C.S., L.R.C.P. Lond., *Medical Officer to the Birmingham Committee for the Care of the Feeble-minded*, 118, Hagley Road, Birmingham.
1876. Powell, Evan, M.R.C.S.Eng., L.S.A., Medical Superintendent, City Asylum, Nottingham.
1810. Powell, James Farquharson, M.R.C.S., L.R.C.P., D.P.H.Lond., M.P.C., Assistant Medical Officer, Mental Hospital, Caterham, Surrey.
1916. Power, Patrick William, L.R.C.P.&S.Irel., Senior Assistant Medical Officer, County Mental Hospital, Chester.
1921. Poynder, Ernest George Thornton, M.R.C.S., L.R.C.P.Lond., Fourth Assistant Medical Officer, Long Grove Mental Hospital, Epsom.
1908. Prentice, Reginald Wickham, L.M.S.S.A.Lond., Beauworth Manor, Alresford, Hants.
1918. Prideaux, John Joseph Francis Engleue, M.R.C.S., L.R.C.P.Lond., Pathological Laboratory, Cambridge.
1901. Pugh, Robert, M.D., Ch.B.Edin., Medical Superintendent, Brecon and Radnor Asylum, Talgarth, S. Wales.
1899. Rainsford, F. E., B.A., M.D.Dubl., L.R.C.P.Irel., L.R.C.P.&S.Edin., Resident Physician, Stewart Institute, Palmerston, co. Dublin.
1894. Rambaut, Daniel F., M.A., M.D., B.Ch.Dubl., Medical Superintendent, St. Andrew's Hospital, Northampton; Priory Cottage, Northampton.
1889. Raw, Nathan, C.M.G., M.D., B.S., L.S.Sc.Durh., F.R.C.S.Edin., M.R.C.P.Lond., M.P.C., M.P., 58, Harley Street, W. 1.
1870. Rayner, Henry, M.D.Aberd., M.R.C.P.Edin., Upper Terrace House, Hampstead, London, N.W. 3. (PRESIDENT, 1884.) (*General Secretary, 1877-89.*) (*Co-Editor of Journal 1895-1911.*)
1913. Read, Charles Stanford, M.D., M.R.C.S., L.R.C.P.Lond., 31, Wimpole Street, London, W. 1; and 16, Downshire Hill, Hampstead, N.W. 3.
1920. Read, Walter Wolfe, M.D.Brx., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Berkshire County Asylum, Wallingford, Berks.
1921. Reardon, Arthur Francis, L.M.S.S.A.Lond., Deputy Medical Superintendent, County Mental Hospital, Cambridge.
1899. Redington, John, F.R.C.S., L.R.C.P.Irel., Deputy Medical Superintendent, Rivagh, Salt Hill, Galway.
1911. Reeve, Ernest Frederick, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Senior Assistant Medical Officer, County Asylum, Rainhill, Lancs.
1911. Reid, Daniel McKinley, M.D., Ch.B.Glasg., Hawkhead Mental Hospital, Cardonald, Glasgow.
1910. Reid, William, M.A.St. And., M.B., Ch.B.Edin., Senior Assistant Medical Officer, Burntwood Mental Hospital, near Lichfield.
1899. Rice, David, M.D.Brx., M.R.C.S., L.R.C.P.Lond., D.P.H., Medical Superintendent, City Asylum, Hillesdon, Norwich.
1897. Richard, William J., M.A., M.B., Ch.M.Glasg., Merryflats, Govan, Glasgow.
1899. Richards, John, M.B., C.M., F.R.C.S.Edin., Medical Superintendent, Joint Counties Mental Hospital, Carmarthen.
1920. Rickman, John, M.A., M.B., B.Ch.Camb., 22, Rose Hill, Dorking, Surrey.
1921. Riddel, Donald Olson, D.S.O., M.B., Ch.B.Aberd., Assistant Medical Officer, County Asylum, Whittingham, Preston.
1911. Robarts, Henry Howard, M.D., Ch.B.Edin., D.P.H.Glasg., Ennerdale, Haddington, Scotland.
1921. Roberts, Edward Douglas Thomas, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.
1914. Roberts, Ernest Theophilus, M.D., C.M.Edin., F.R.F.P.&S.Glasg., D.P.H. Camb., M.P.C., Hawkstone, 58, South Brae Drive, Jordanhill, Glasgow.

1903. Roberts, Norcliffe, *O.B.E.*, M.D., B.S.Durh., Medical Superintendent, Ministry of Pensions Hospital, Ewell.
1887. Robertson, Geo. M., M.D., C.M., E.R.C.P.Edin., M.P.C., Physician-Superintendent, Royal Asylum, Morningside, Edinburgh; Tipperlin House, Morningside Place, Edinburgh. (Prof. of Psychiatry, Univ. of Edinburgh.) (PRESIDENT-ELECT.)
1908. Robertson, George Dunlop, L.R.C.S.&P.Edin., Dipl. Psych., Assistant Medical Officer, District Asylum, Hartwood, Lanark.
1895. Robertson, William Ford, M.D., C.M.Edin., Pathologist, Scottish Asylums, 60, Northumberland Street, Edinburgh.
1900. Robinson, Harry A., M.D., Ch.B.Vict., 140, Edge Lane, Liverpool.
1920. Robinson, William, M.B., Ch.B., D.P.M.Leads, Medical Superintendent, Essex County Mental Hospital, Brentwood.
1911. Robson, Capt. Hubert Alan Hirst, M.R.C.S., L.R.C.P.Lond., Punjab Asylum, India.
1914. Rodger, Murdoch Mann, M.D., Ch.B.Glasg. (The Anchorage, Bothwell, Scotland); Lunatic Asylum, Abbassia, Cairo, Egypt.
1908. Rodgers, Frederick Millar, M.D., Ch.B.Vict., D.P.H., Senior Medical Officer, County Asylum, Winwick, Lancs.
1895. Rolleston, Lancelot W., *C.B.E.*, M.B., B.S.Durh., Medical Superintendent, Middlesex County Mental Hospital, Napsbury, near St. Albans.
1920. Roserow, Cecil Beaumont, L.R.C.P.&S.Edin., Medical Superintendent, City Mental Hospital, Winson Green, Birmingham.
1888. Ross, Chisholm, M.D.Syd., M.B., C.M.Edin., 151, Macquarie Street, Sydney, New South Wales.
1910. Ross, Donald, M.B., Ch.B.Edin., M.P.C., Medical Superintendent, Argyll and Bute Asylum, Lochgilphead; Tigh-ma-Linne, Lochgilphead, Argyll.
1899. Rotherham, Arthur, M.A., M.B., B.Ch.Camb., Commissioner under Ment. Defec. Act, Board of Control, 66, Victoria Street, Westminster, London, S.W. 1.; Lanesand, Ashtead, Surrey.
1906. Rowan, Marriott Logan, B.A., M.D.R.U.I., Medical Superintendent, Derby County Asylum, Mickleover.
1883. Rowland, E. D., M.B., C.M.Edin., 71, Main Street, George Town, Demerara, British Guiana.
1902. Rows, Richard Gundry, *C.B.E.*, M.D.Lond., M.R.C.S., L.R.C.P.Lond. (Director, Section of Mental Diseases), Tooting Neurological Hospital, Church Lane, Tooting, S.W.
1877. Russell, Arthur P., M.B., C.M., M.R.C.P.Edin., The Lawn, Lincoln.
1912. Russell, John Ivison, M.B., Ch.B.Glasg., M.P.C., Assistant Medical Officer, West Riding Asylum, Wakefield.
1915. Russell, William, *M.C.*, M.D., Ch.B., Dip.Psych., D.T.M.Edin., Senior Assistant Physician, Mental Hospital, Bloemfontein, S. Africa.
1912. Rutherford, Cecil, M.B., B.Ch.Dubl., Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.
1907. Rutherford, Henry Richard Charles, F.R.C.S., L.R.C.P.Irel., D.P.H., St. Patrick's Hospital, James's St., Dublin.
1896. Rutherford, James Mair, M.B., C.M., F.R.C.P.Edin., M.P.C., Brislington House, Bristol.
1902. Sall, Ernest Frederick, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, The Mental Hospital, Canterbury.
1908. Samuels, William Frederick, L.M.&S.Dubl., S. Dymphna's, Tanjong, Rambutan, F.M.S.
1894. Sankey, Edward H. O., M.A., M.B., B.Ch.Camb., Resident Medical Licensee, Boreatton Park Licensed House, Baschurch, Salop.
1854. Sankey, R. H. Heurtley, M.R.C.S.Eng., 3, Marston Ferry Road, Oxford.
1906. Scanlan, John J., L.R.C.P. & S.Edin., L.R.F.P. & S.Glasg., D.P.H., 80, Royal Hospital Road, Chelsea.

1889. Scowcroft, Walter, M.R.C.S.Eng., L.R.C.P.Irel., Medical Superintendent Royal Lunatic Hospital, Cheadle, near Manchester.
1911. Scroope, G., M.B., B.Ch.Dubl., Assistant Medical Officer, Central Asylum, Dundrum.
1880. Seccombe, George S., M.R.C.S., L.R.C.P.Lond., c/o Messrs. H. S. King and Co., 65, Cornhill, London, E.C. 3.
1912. Sergeant, John Noel, M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Newlands House, Tooting Bec Common, London, S.W. 17. (*Secretary South-Eastern Division since 1913.*)
1921. Severn, Adolphe Gladstone Millott, M.D.Brax., M.R.C.S., L.R.C.P. Lond., F.C.S., Jesus College, Cambridge.
1913. Shand, George Ernest, M.D., Ch.B.Aberd.; (Senior Assistant Medical Officer, City Mental Hospital, Winson Green, Birmingham). *Permanent address:* 307, Gillott Road, Edgbaston, Birmingham.
1901. Shaw, B. Henry, M.D., B.Ch.R.U.I., Medical Superintendent, County Mental Hospital, Stafford.
1905. Shaw, Charles John, M.D., Ch.B., F.R.C.P.Edin., Medical Superintendent, Royal Asylum, Montrose.
1917. Shaw, John Custance, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, West Ham Borough Asylum, Goodmayes, Essex.
1904. Shaw, Patrick, L.R.C.P.&S.Edin., Medical Superintendent, Hospital for Insane, Ballarat, Victoria, Australia.
1909. Shaw, William Samuel J., Major I.M.S., M.D.Belf., M.B., B.Ch.R.U.I., c/o Messrs. Grindlay & Co., 54, Parliament Street, S.W. 1.
1920. Shearer, Christina Hamilton, M.B., Ch.B.Glasg., Visiting Physician, Lady Chichester Hospital, 11, The Drive, Hove, Sussex.
1909. Shepherd, George Ferguson, F.R.C.S., L.R.C.P.Irel., D.P.H., 9, Ogle Terrace, South Shields.
1900. Shera, John E. P., M.D.Brux., L.R.C.P.&S.Irel., Medical Superintendent, Somerset County Asylum, Wells, Somerset.
1914. Sherlock, Edward Burball, B.Sc., M.D., D.P.H.Lond., Medical Superintendent, Dartmouth Industrial Colony, Dartford.
1914. Shield, Hubert, M.C., M.B., B.S.Durh., Assistant Medical Officer, Archbold Terrace, Jesmond, Newcastle-on-Tyne.
1877. Shuttleworth, George E., B.A.Lond., M.D.Heidelb., M.R.C.S. and L.S.A. Lond., 36, Lambolle Road, Hampstead, London, N.W. 3.
1901. Simpson, Alexander, C.B.E., M.A., M.D., C.M.Aberd., Medical Superintendent, County Asylum, Winwick, Wallington, Lancashire.
1905. Simpson, Edward Swan, M.D., Ch.B.Edin., East Riding Asylum, Beverley, Yorks.
1888. Sinclair, Eric, M.D., C.M.Glasg., Inspector-General of Insane, Richmond Terrace, Demain, Sydney, N.S.W.
1891. Skeen, James Humphry, M.B., C.M.Aberd., M.P.C., Medical Superintendent, Fife and Kinross District Asylum, Cupar, N.B.
1921. Skene, Leslie Henderson, M.B., Ch.B., Dipl.Psych.Edin., Medical Superintendent, Criminal Lunatic Department, Perth; "Glenpark," Edinburgh Road, Perth.
1914. Slaney, Chas. Newnham, M.R.C.S., L.R.C.P.Lond., The Elms, Parkhurst, I.W.
1901. Slater, George N. O., M.D.Lond., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Essex County Mental Hospital, Brentwood.
1910. Smith, Gayton Warwick, M.D.Lond., B.S.Durh., M.R.C.S., L.R.C.P. Lond., D.P.H., Assistant Medical Officer, Springfield Mental Hospital, Tooting, London, S.W. 17.
1905. Smith, George William, M.B., Ch.B.Edin., Chiswick House, Chiswick.
1907. Smith, Henry Watson, M.D., Ch.B.Aberd., Medical Superintendent, Lebanon Hospital for the Insane, Asfuriyeh, near Beyrouth, Syria.
1899. Smith, John G., M.D., C.M.Edin., Medical Superintendent, County and City Mental Hospital, Burghill, near Hereford.
1920. Smith, Maurice Hamblin, M.A.Camb., M.D.Durh., M.R.C.S., L.R.C.P. Lond., H.M. Prison, Birmingham.

1885. Smith, R. Percy, M.D., B.S., F.R.C.P.Lond., M.P.C., 36, Queen Anne Street, Cavendish Square, London, W. 1. (*General Secretary, 1896-7. Chairman Educational Committee, 1899-1903.*) (**PRESIDENT, 1904-5.**)
1913. Smith, Thomas Cyril, M.B., B.Ch.Edin., County Asylum, Gloucester.
1911. Smith, Thomas Waddelow, F.R.C.S.Eng., L.R.C.P.Lond., M.P.C., Assistant Medical Officer, City Asylum, Nottingham.
1884. Smith, W. Beattie, F.R.C.S., L.R.C.P.Edin., 4, Collins Street, Melbourne, Victoria.
1914. Smith, Walter R. H., B.A., M.D., B.Ch.Dubl., Senior Assistant Medical Officer, County Asylum, Shrewsbury.
1920. Smyth, Geoffrey Norman, L.R.C.P.&S.Irel., Assistant Medical Officer, St. Edmundsbury, Lucan, Co. Dublin.
1921. Smyth, John Francis, M.B., B.Ch., B.A.O., N.U.I., Assistant Medical Officer, Gateshead Mental Hospital, Stannington.
1899. Smyth, Walter S., M.B., B.Ch.R.U.I., Assistant Medical Officer, County Asylum, Antrim.
1913. Somerville, Henry, B.Sc., M.R.C.S., L.R.C.P.Lond., F.C.S., Harrold, Sharnbrook, Bedfordshire.
1885. Soutar, James Greig, M.B., C.M.Edin., M.P.C., 20, Royal Parade, Cheltenham. (**PRESIDENT, 1912-13.**)
1906. Spark, Percy Charles, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, London County Mental Hospital, Banstead, Surrey.
1875. Spence, J. Beveridge, *O.B.E.*, M.D., M.Ch.Q.U.I., L.A.H.Dubl., Medical Superintendent, Burntwood Mental Hospital, near Lichfield. (*First Registrar, 1892-1899; Chairman Parliamentary Committee, 1910-12.*) (**PRESIDENT, 1899-1900.**)
1920. Staley, Mildred Ernestine, M.B., B.S.Lond., Assistant Medical Officer, Stafford County Mental Hospital, Burton-on-Trent; Rosiston Rectory, Burton-on-Trent.
1891. Stansfield, T. E. K., *C.B.E.*, M.B., C.M.Edin., Southmead, Wimbledon Park, London, S.W. 19.
1901. Starkey, William, M.B., B.Ch.R.U.I., Medical Superintendent, Borough Asylum, Blackadon, Ivybridge, S. Devon.
1907. Steele, Patrick, M.D., Ch.B., M.R.C.P.Edin., Medical Superintendent, The Hermitage, Melrose.
1898. Steen, Robert H., B.A.R.U.I., M.D., M.R.C.P.Lond., Medical Superintendent, City of London Mental Hospital, Stone, Dartford. (*Hon. Sec. S.E. Division, 1905-10; Acting Gen. Sec. and Gen. Sec. 1915-19.*) (*Prof. of Psychol. Med. King's College Hosp.*)
1914. Stephens, Harold Freize, M.R.C.S., L.R.C.P.Lond., 9, Belmont Avenue, Palmer's Green, Middlesex.
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1868. Stewart, James, B.A.Q.U.I., F.R.C.P.Edin., L.R.C.S.Irel., "Donegal," 32, Kingsmead Road, London, S.W. 2.
1887. Stewart, Rothsay C., M.R.C.S.Eng., L.S.A.Lond., Medical Superintendent, County Mental Hospital, Narborough, near Leicester.
1914. Stewart, Roy M., M.B., Ch.B.Edin., D.P.M., Assistant Medical Officer, County Asylum, Whittingham, Preston.
1905. Stilwell, Henry Francis, L.R.C.P.&S.Edin., Hayes Park, Hayes, Middlesex.
1899. Stilwell, Reginald J., M.R.C.S., L.R.C.P.Lond., Moorcroft House, Hillingdon, Middlesex.
1897. Stoddart, William Henry Butter, M.D., B.S., F.R.C.P.Lond., M.R.C.S. Eng., M.P.C., Harcourt House, Cavendish Square, London, W. 1. (*Hon. Sec. Educational Committee, 1908-1912.*) (*Lect. on Ment. Dis. St. Thomas's Hosp.*)
1909. Stokes, Frederick Ernest, M.D., Ch.B.Glasg., D.P.H., Assistant Medical Officer, Boro' Mental Hospital, Portsmouth.
1903. Stratton, Percy Haughton, M.R.C.S., L.R.C.P.Lond., York Lodge, Cliff Cottage Road, Bournemouth.

1885. Street, C. T., M.R.C.S., L.R.C.P.Lond., Haydock Lodge, Ashton, Newton-le-Willows, Lancashire.
1909. Stuart, Frederick J., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Northampton County Asylum, Berrywood.
1900. Sturrock, James Prain, M.A.St.And., M.D., C.M.Edin., 25, Palmerston Place, Edinburgh.
1886. Suffern, Alex. C., M.D., M.Ch.R.U.I., Glen-y-Mor, Hillhead, Fareham, Hants.
1921. Suffern, Cannings, M.A.Camb., M.R.C.S., L.R.C.P.Lond., Junior Assistant Medical Officer, City Mental Hospital, Nottingham.
1894. Sullivan, William C., M.D., B.Ch.R.U.I., State Criminal Lunatic Asylum, Broadmoor, Crowthorne, Berks.
1920. Sutcliffe, John, M.R.C.S., L.R.C.P.Edin., Medical Superintendent, Cheadle Royal, Cheadle, Cheshire.
1918. Sutherland, Francis, M.B., Ch.B.Edin., D.P.H., Assistant Medical Officer, District Asylum, Inverness.
1919. Suttie, Ian D., M.B., Ch.B., F.R.F.P.&S.Glasg. (Assistant Medical Officer, Royal Asylum, Glasgow), 1055, Great Western Road, Glasgow.
1916. Suttie, Jane I., M.B., Ch.B.Glasg., 4, Granville Street, Glasgow.
1908. Swift, Eric W. D., M.B.Lond., Medical Superintendent, Mental Hospital, Bloemfontein, S. Africa.
1908. Tattersall, John, M.D.Lond., M.R.C.S., M.R.C.P.Lond., Deputy Medical Superintendent, London County Mental Hospital, Hanwell, London, W. 7.
1910. Taylor, Arthur Loudoun, B.Sc., M.B., Ch.B., M.R.C.P.Edin., Craigend Neuroasthenic Hospital, Craigend Park, Liberton, Midlothian.
1897. Taylor, Frederic Ryott Percival, M.D., B.S.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, East Sussex Mental Hospital, Hellingly.
1921. Thomas, Cyril James, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, County Asylum, Lancaster.
1920. Thomas, Frederic Percival Selwyn, M.B., Ch.B.Vict.; Neurological Pensions Medical Board, Potties Area; Banagh, Chesterton, Newcastle, Staffs.
1921. Thomas, George Nathaniel William, M.B., Ch.B.Edin., of the Middle Temple and South Wales Circuit, Barrister-at-Law; Assistant Medical Officer, Napsbury Mental Hospital, Napsbury, St. Albans.
1908. Thomas, Joseph D., B.A., M.B., B.C.Camb., Northwoods House, Winterbourne, Bristol.
1911. Thomas, William Rees, M.D., B.S.Lond., M.R.C.S., M.R.C.P.Lond., M.P.C., Rampton State Institution, near Retford, Notts; Gray Ridges, Woodbeck, Retford, Notts.
1921. Thompson, James Arthur, B.A., M.B., B.Ch.Dub. (T.C.D.), Surgeon-Cdr. R.N., Royal Naval Hospital, Haslar; 47, Victoria Road North, Southsea.
1921. Thomson, Aidan Gordon Wemyss, M.B., Ch.B.Glasg., Assistant Medical Officer, Glasgow Royal Asylum, Gartnavel, Glasgow.
1880. Thomson, David G., C.B.E., M.D., C.M.Edin., Medical Superintendent, County Mental Hospital, Thorpe, Norfolk. (PRESIDENT, 1914-18.)
1903. Thomson, Herbert Campbell, M.D., F.R.C.P.Lond., Assist. Physician Middlesex Hospital, 34, Queen Anne Street, London, W. 1.
1920. Thomson, William George, M.A., M.B., Ch.B.Aberd., D.P.H., Assistant Medical Officer, County Mental Hospital, Cheddleton, Leek.
1901. Tighe, John V. G. B., M.B., B.Ch.R.U.I., Medical Superintendent, Gateshead Mental Hospital, Stannington, Northumberland.
1914. Tisdall, C. J., M.B., Ch.B.Edin., Tue Brook Villa, Liverpool.
1903. Topham, J. Arthur, B.A.Camb., M.R.C.S., L.R.C.P.Lond., Kent County Mental Hospital, Charlton Downs, Kent.
1896. Townsend, Arthur A. D., M.D., B.Ch.Birm., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Barnwood House, Hospital for Insane, Gloucester.

1904. Treadwell, Oliver Fereira Naylor, M.R.C.S.Eng., L.S.A.Lond., 8, Trebovir Road, Earl's Court, S.W.
 1903. Tredgold, Alfred F., M.D., F.R.S.Edin., M.R.C.P.Lond., M.R.C.S.Eng., "St. Martins," Guildford, Surrey.
 1908. Tuach-MacKenzie, William, M.D., Ch.B.Aberd., Medical Superintendent, Royal and District Asylums, Dundee; Westgreen, Dundee. (Lect. on *Ment. Dis. St. And. Univ.*)
 1881. Tuke, Charles Molesworth, M.R.C.S.Eng., Chiswick House, Chiswick, W.4.
 1906. Turnbull, Peter Mortimer, M.C., M.B., B.Ch.Aberd., Tooting Bec Mental Hospital, Tooting, London, S.W. 17.
 1909. Turnbull, Robert Cyril, M.D.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Essex County Mental Hospital, Colchester.
 1889. Turner, Alfred, M.D., C.M.Edin., Plympton House, Plympton, S. Devon.
 1906. Turner, Frank Douglas, M.B.Lond., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Royal Eastern Counties Institution, Colchester.
 1890. Turner, John, M.B., C.M.Aberd., South Street, Rochford, Essex.

 1917. Vevers, Oswald Henry, M.R.C.S., L.R.C.P.Lond., Norton Vicarage, Evesham.
 1904. Vincent, George A., M.B., B.Ch.Edin., Assistant Medical Superintendent, St. Ann's Asylum, Port of Spain, Trinidad, B.W.I.
 1894. Vincent, William James N., C.B.E., M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Wadsley Asylum, near Sheffield. (Lect. on Psychiatry Univ. of Sheffield.)
 1914. Vining, Charles Wilfred, M.D., B.S., M.R.C.P.Lond., D.P.H., M.P.C., Assistant Physician, Leeds General Infirmary, 31, Park Square, Leeds.

 1913. Walford, Harold R. S., M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Kent County Mental Hospital, Barming Heath, Maidstone.
 1920. Walker, James, M.B., Ch.B.Vict., D.P.H., M.P.C., Senior Assistant Medical Officer, City of Cardiff Mental Hospital, Whitchurch, near Cardiff.
 1914. Walker, Robert Clive, M.B., Ch.B.Edin., West Riding Asylum, Menston, near Leeds.
 1908. Wallace, John Andrew Leslie, M.D., Ch.B.Edin., M.P.C., Mental Hospital, Callan Park, Sydney, N.S.W.
 1912. Wallace, Vivian, L.R.C.P. & S.Irel., Assistant Medical Officer, District Asylum, Mullingar.
 1920. Wanklyn, William McConnel, B.A.Camb., M.R.C.S., L.R.C.P.Lond., D.P.H., Principal Assistant in the Public Health Department of the London County Council, 2, Savoy Hill, London, W.C. 2.
 1889. Warnock, John, C.M.G., B.Sc., M.D., C.M.Edin., Medical Superintendent, Abbasiyeh Asylum, nr. Cairo, Egypt.
 1895. Waterston, Jane Elizabeth, M.D.Brux., L.R.C.P.&S.Edin., M.P.C., 85, Parliament Street, Box 78, Cape Town, South Africa.
 1891. Watson, George A., M.B., C.M.Edin., M.P.C., Lyons House, Rainhill, Liverpool.
 1908. Watson, H. Ferguson, M.D., Ch.B.Glasg., L.R.C.P.&S.Edin., L.R.F.P.&S. Glasg., Northcote, Edinburgh Road, Perth.
 1911. Webber, Leonard Mortis, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Netherne Mental Hospital, Coulsdon, Surrey.
 1919. Westrup, Joseph Percival, M.R.C.S., L.R.C.P.Lond., Medical Officer, Fisherton House Mental Hospital, Salisbury.
 1919. Wheeler, Frederic Francis, M.R.C.S., L.R.C.P.Lond., 5, Egleston Road, Putney, S.W. 15.
 1911. White, Edward Barton C., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Dorset Mental Hospital, Charmminster.
 1884. White, Ernest William, C.B.E., M.B., M.R.C.P.Lond., Betley House, nr. Shrewsbury. (*Hon. Sec. South-Eastern Division, 1897-1900.*) (*Chairman Parliamentary Committee, 1904-7.*) (*PRESIDENT 1903-4.*)

1921. Whitelaw, William, M.B., B.Ch.Glasg., Director Western Asylums Research Institute; 10, Claythorn Road, Glasgow, W.
 1905. Whittington, Richard, M.A., M.D.Oxon., M.R.C.S., L.R.C.P.Lond., 1, Eaton Gardens, Hove, Sussex.
 1889. Whitwell, James Richard, M.B., C.M.Edin., Medical Superintendent, St. Audry's Hospital, Melton, Suffolk.
 1913. Wilkins, William Douglas, M.B., Ch.B.Vict., M.R.C.S., L.R.C.P. Lond., County Mental Hospital, Cheddleton, Leek, Staffs.
 1900. Wilkinson, H. B., M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Plymouth Borough Asylum, Blackardon, Ivybridge, South Devon.
 1887. Will, John Kennedy, M.A., M.D., C.M.Aberd., M.P.C., Fisherton House, Salisbury.
 1914. Williams, Charles, L.R.C.P. & S.Edin., L.S.A.Lond., The Vicarage, 147, Hornsey Road, Holloway, N.
 1907. Williams, Charles E. C., M.A., M.D., B.Ch.Dubl.; Branksome Chine House, Branksome Park, Bournemouth.
 1905. Williams, David John, M.R.C.S., L.R.C.P.Lond., Medical Superintendent, The Asylum, Kingston, Jamaica.
 1920. Wilson, James Leitch, M.B., Ch.B.Edin., Assistant Medical Officer, Brooke House, Clapton, E.5.
 1916. Wilson, Marguerite, M.B., Ch.B.Glasg., c/o Messrs. Wilson & Baird, 372, Scotland Street, Glasgow.
 1912. Wilson, Samuel Alexander Kinnier, M.A., B.Sc., M.D.Edin., F.R.C.P. Lond., Registrar, National Hospital, Queen's Square, 14, Harley Street, London, W.1.
 1899. Wolseley-Lewis, Herbert, M.D.Brux., F.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Kent County Mental Hospital, Barming Heath, Maidstone. (*Secretary Parliamentary Committee, 1907-12, Chairman, 1912-21.*)
 1921. Wood, Bertram William Francis, M.B., B.S.Univ. Leeds, c/o P.M.O., Kaduna, Northern Provinces, Nigeria.
 1869. Wood, T. Outterson, M.D.Durh., M.R.C.P.Lond., F.R.C.P., F.R.C.S. Edin., "Lodore," Chelston Road, Torquay. (*PRESIDENT, 1905-6.*)
 1912. Woods, James Cowan, M.D., B.S.Lond., M.R.C.S., L.R.C.P.Lond., 45, Weymouth Street, W.1. (Lect. on Ment. Dis. St. George's Hosp. and London Hosp.)
 1885. Woods, J. F., M.D.Durh., M.R.C.S.Eng., 7, Harley Street, Cavendish Square, London, W.1.
 1912. Wootton, John Charles, M.R.C.S., L.R.C.P.Lond., Haydock Lodge, Newton-le-Willows, Lancs.
 1900. Worth, Reginald, O.B.E., M.B., B.S.Durh., M.R.C.S., L.R.C.P.Lond., Medical Superintendent, Springfield Mental Hospital, nr. Tooting, S.W. 17. (*General Secretary since 1919.*)
 1917. Wright, Maurice Beresford, O.B.E., M.D., C.M.Edin., 4, Devonshire Place, London, W.1.
 1921. Yellowlees, David, M.B., Ch.B.Glasg., 5, St. James Terrace, Glasgow, W.
 1914. Yellowlees, Henry, O.B.E., M.D., Ch.B.Glasg., F.R.F.P.&S.Glasg., Medical Superintendent, The Retreat, York.

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1899. Harmer, W. A., L.S.A., Redland Private Asylum, Tonbridge, Kent.
1917. Bruce, Alexander Ninian, D.Sc., M.D., F.R.C.P.Edin., Lecturer on Neurology, University of Edinburgh, 8, Ainslie Place, Edinburgh.
1893. Kershaw, Herbert Warren, M.R.C.S., L.R.C.P.Lond., 1, Stanhope Road, Darlington.
1913. Molyneux, Benjamin Arthur, B.A., M.D., B.Ch.Dubl., St. Helens House, St. Helens, Hastings.
1873. Savage, Sir Geo. H., M.D., F.R.C.P.Lond., 26, Devonshire Place, London, W. 1. (*Late Editor of Journal.*) (PRESIDENT, 1886.)
1862. Yellowlees, David, LL.D.Glasg., M.D.Edin., F.R.F.P.&S.Glasg., "Grange-neuk," Fountainhall Road, Edinburgh. (PRESIDENT, 1890.)
1910. Younger, Edward George, M.D.Brx., M.R.C.S., M.R.C.P., L.S.A.Lond., D.P.H., Physician to the Finsbury Dispensary, 2, Mecklenburgh Square, London, W.C. 1.



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Part I.—Original Articles.

A Note on the Diastase-Content of the Urine in 120 Cases of Mental Disorder.⁽¹⁾ By EDWIN GOODALL, C.B.E., M.D., B.S., F.R.C.P.Lond., and H. A. SCHOLBERG, M.B.Lond., D.P.H. (From the Pathological Laboratory, Cardiff City Mental Hospital.)

THE need for applying to cases of mental disorder the biological and bio-chemical methods of the laboratory is, it is to be hoped, apparent to all and sundry who are concerned in the treatment of these cases, whether they are styled psycho-analysts, esoteric-psycho-therapists, or psychiatrists pure and simple.

The unfortunate fact that the mentally-disordered in this country are still denied the privilege of association in the early phases of their malady with other cases of disorder, and suffer from the medical standpoint the evils of segregation, does not absolve us, as medical men, from affording them to the best of our ability under the present hampering conditions the advantages of laboratory work, whether in the domain of pure research or routine methods. As an instance of the former, we mention investigation of the precipitin reaction—a subject one of us had occasion to deal with in the Croonian Lectures, delivered in 1914—or inquiry into the behaviour of haemolysis and agglutinins. An instance of the latter would be the diastase test in the urine. It matters not whether the results are positive or negative; it is necessary to have them. For this reason we make the present communication.

Physiology teaches that the pancreatic juice, as well as fresh extracts of the pancreas, contains an amylolytic ferment—diastase, amylase, or amylopsin. The hydrolysis of starch effected by pancreatic juice is the same as that effected by ptyalin. A dextrin is formed which gives a red colour with iodine, and is therefore known as erythrodextrin. The final result is an achreodextrin (which gives no colour with iodine) and maltose.

Corbett is cited by MacKenzie Wallis in an article in the *British Medical Journal* ⁽¹⁾ as having done the best and most complete work—at any rate in this country—on the subject of the diastase-content of the

⁽¹⁾ A paper read at the Annual Meeting held in London, July 12th, 1921.

urine; he showed that there is normally a certain amount of diastase in the blood, and that the same quantity is excreted by the kidneys. Provided the kidneys are functionally unimpaired, an increase of diastase in the blood is accompanied by a corresponding increase in the amount of diastase in the urine. MacKenzie Wallis states that the slightest damage to the renal epithelium leads either to a diminution or an increase of urinary diastase, depending upon the permeability of the kidney. MacLean and Russell, however, (2) state that a high diastatic value is in nearly every case an indication of efficient renal action. According to MacKenzie Wallis, there seems to be no doubt that a high diastase-value of the urine is in favour of pancreatic disease, whereas, with a normal pancreas, normal or low values are obtained.

The method adopted in this inquiry was that of Wohlgemuth, in accordance with which varying strengths of urine are added to a given amount of starch, and the mixture digested for thirty minutes at body-heat.

The tubes containing the various strengths of urine from 0·5 c.c. to 10 c.c., made up in each case to 1 c.c. with distilled water, were placed in a water-bath at body-heat for fifteen minutes. To each tube were then added 2 c.c. of a 1 per 1,000 starch solution (starch dissolved in 10 per cent. sodium chloride and kept as a 2 per cent. stock solution), commencing with the highest tube; in practice ten tubes are usually sufficient, the tenth containing 0·5 c.c. of urine. The contents were mixed by agitation, and the tubes replaced in the water-bath at body-heat for thirty minutes. They were then removed and placed in a beaker of cold water for three minutes to cool. The tubes were then placed in the test-tube stand in order, commencing with the 0·5 tube.

Commencing with tube 1, one drop of 1 in 50 normal solution of iodine was added by a specially-made pipette, delivering always the same quantity. If the colour produced rapidly faded, another drop was added to each tube. The tube in which the starch had been digested as far as the dextrin stage—the first tube from No. 1, showing a reddish colour, with no tinge of blue—was taken as the limit tube. The formula $d_{30}^{38^\circ}$ expresses in units the amount of a 0·1 per cent. solution of starch which 1 c.c. of urine is able to digest, at the temperature named, in half an hour. The normal average value is given by different writers as from 5-20, from 6-30, and from 10-33·3 units.

As regards diet taken by the patients, the subjects of these observations, at the outset of the work they were given a diet of milk, eggs, rice pudding, and bread and butter, on which they subsisted in bed for forty-eight hours, the urine being collected over the second twenty-four-hour period. Later many of the same patients and a fresh batch of cases were kept in bed for twenty-four hours (during which the

urine was collected) on the ordinary diet of mental hospitals, consisting of bread and margarine for breakfast and tea; meat, fish or soup, with bread (occasionally an addition—to fish or soup—of cheese, or bread and currant pudding), for dinner; and $2\frac{1}{2}$ pints of fluid (tea 2 pints, water $\frac{1}{2}$ pint). The difference in diet made no difference in the results obtained. A specimen from the twenty-four-hour urine was examined in each case. Rigid precautions were taken to prevent contamination of the urine by saliva or otherwise. The utensil was kept away from the patient until required. Urine, as passed, was poured into a bottle containing toluol.

A record was kept in each case of the quantity of urine passed, its specific gravity, reaction, and the presence or otherwise of albumen and sugar.

As regards the kinds of mental disorder, the patients examined may be classified as follows: Delusional insanity, 20; secondary dementia, 21; recent melancholia, 17; dementia *præcox*, 10; recent mania, 9; congenital mental defect, 9; acute confusional state, 8; dementia paralytica (demented type), 7; dementia paralytica (maniacal type), 1; insanity with epilepsy, 6; congenital defect with epilepsy, 3; alcoholic delusions, 2; alcoholic confusion, 1; hypochondriasis, 2; chronic mania, 1; acute hallucinatory state, 1; primary dementia (? dementia *præcox*), 1.

In respect of general bodily condition, 81 were in good, 11 in fairly good, 28 in reduced condition.

As regards ages in decennial periods, the cases were distributed thus 17 cases between the ages of 17 years and 26 years inclusive, 28 between 27 and 36, 28 between 37 and 46, 26 between 47 and 56, 18 between 57 and 66, 3 between 67 and 76.

With very few exceptions the urine was examined at least twice at intervals, and in many cases from three to seven times. Out of a total of 120 patients examined (324 total urine examinations), a low diastase value, in the absence of all evidence of kidney disease (as afforded by the usual clinical urine tests, including the urea concentration test), was found in only 6 cases (2 secondary dementia; 2 general paralysis of the insane, demented form; 1 recent melancholia; 1 recent mania). A high diastase value—kidney disease similarly excluded—was found in only one case (recent delusional insanity). The diastase figure in this case was 200. The patient was discharged; he relapsed, and during the relapse the figure was 50.

In only one of the cases dealt with was there evidence of kidney disease (mental disorder associated with arterio-sclerosis), and in this the diastase figure was 66·6 on one occasion (sp. gr. urine 1,012; albumen; urea concentration, 1·43 per cent.). On a second occasion, about seven weeks later, the diastase figure was 6·6; urine (twice) sp. gr. 1,018-1,020; no albumen.

In all other cases than those above referred to (excluding the case of kidney disease) the diastase value was within the normal limits.

Since only a high diastase value is in favour of pancreatic disease, there is evidence of such disease—as far as this test is concerned—in only one case of the number examined.

Conclusion.—Out of 120 cases of various kinds of mental disorder, as seen in a public institution, there was no evidence, excluding one possible case, of pancreatic disease, as indicated by the urinary-diestase test.

In the course of this investigation our attention has been drawn to the wide variations in the amount of urine passed by patients—a condition noted by my colleagues and myself in the course of previous investigations involving the collection of urine. We know that wide variations occur under normal conditions. MacLeod (*Physiology and Bio-chemistry in Modern Medicine*, third edition) states the amount of urine passed in twenty-four hours as 1,000–1,800 c.c. On a constant diet with constant fluid intake (2,070 c.c.) the urine excreted by 20 individuals varied from 1,013 to 1,712 c.c. (35 to 60 oz.) in twenty-four hours. Whether these patients were up and about or in bed is not stated, and no mention is made of the meteorological conditions. We have kept 49 patients (of whom 26 were chronic, healthy, working cases, and 23 recent and acute cases) in bed for three successive periods of twenty-four hours, upon a fixed diet and fixed amount of fluid, and collected the urine for three periods of twenty-four hours each, taking the average quantity passed in twenty-four hours. The diet consisted of a fixed quantity of bread and margarine for breakfast and tea, and of a fixed amount of meat, vegetables and bread for dinner, with 2½ (in some cases 3) pints of fluid *per diem*. The following table shows respectively for the months of March, April, May and June the average amount of urine passed per twenty-four hours, the average maximum and mean temperatures, and the average percentage humidity (*i.e.*, the average of the temperatures and humidity for each case in the group concerned).

Numbers of cases.	Average amount passed, in ounces.	Average maximum temperature. °F.)	Average mean temperature. °F.)	Average humidity. (Per cent.)
<i>March-April.</i>				
26 chronic cases .	47·3	53·87	46·7	78·0
<i>March-April.</i>				
5 recent cases .	31·4	55·76	47·02	79·2
<i>May.</i>				
6 recent cases .	25·0	62·6	53·6	69·3
<i>June.</i>				
12 recent cases .	25·8	69·8	60·22	62·8

The slight difference in temperature and humidity between the

period in March–April, when the acute and recent cases were dealt with, and the period in the same months when the chronic cases were taken, does not account for the lesser amount (by nearly 16 oz. per twenty-four hours) of urine passed by the recent cases. It happened that only five of these cases occurred during March and April, the rest of the recent cases occurring in May and June, when, as the table shows, the average maximum and mean temperatures were higher and the average humidity less, accounting, presumably, for a fall in the amount of urine passed. Nevertheless, the amounts passed in May and June (25 and 25·8 oz. per twenty-four hours) are very low. Some of these patients passed an average of only 19, 18 and 13 oz. in the twenty-four hours.

The subject is worthy of more extensive inquiry, with the safeguard of controls in normal persons, which, however, we have found it hitherto not feasible to obtain, having regard to the somewhat irksome conditions involved, with the exception of 3 cases of fractured femur (2) and patella (1), otherwise healthy persons, patients in King Edward VII's Hospital, Cardiff. These were kept under precisely the same conditions, as regards bed and diet, as the mental cases. Their average (three days) 24-hour urine amounts were respectively 57, 38 and 34 oz., as against 33, 24, 18, 28 and 23 oz. in recent and acute mental cases at about the same dates in the month of May, or an average of 43 oz. as against 25 oz.

(The discussion which followed will be found on p. 524, vol. Ixvii, 1921.)

(¹) *Brit. Med. Journ.*, August 21st, 1920.

(²) *Lancet*, June 19th, 1920.

The Passage of a Barium Sulphate Meal in ten Cases of Dementia Præcox.⁽¹⁾ By R. V. STANFORD, M.Sc., Ph.D. (Cardiff City Mental Hospital), and EDWIN GOODALL, C.B.E., M.D., B.S., F.R.C.P.Lond. (Cardiff City Mental Hospital), with the advice and co-operation of ROBERT KNOX, M.D.Edin., Hon. Radiologist, King's College Hospital, etc.

THE investigation of which the ten cases here dealt with constitute the early stage was undertaken in connection with an inquiry, still in progress, into the gastric digestion of a test-meal in cases of dementia præcox. Incidentally, Sir Arbuthnot Lane includes dementia præcox amongst the conglomeration of diseases which, according to him, are traceable to coprostasis.

The lantern-slides here exhibited illustrate the passage of a barium sulphate meal through the gastro-intestinal tract in ten cases of dementia præcox. The intention to include some other cases was frustrated by the resistance offered by the patients, but the inquiry is being pursued.

(¹) A paper read at the Annual Meeting held in London, July 12th, 1921.

The radiograms from which the slides were made were taken by Dr. R. V. Stanford, M.Sc., Ph.D., Research Chemist, Cardiff City Mental Hospital, in the X-Ray Department of the Hospital. All the radiograms are "instantaneous" pictures, so that no blurring due to peristalsis is met with. These rapid exposures were obtained by using duplitised films, which have a sensitive emulsion on both sides, and two intensifying screens, one on each side. The actual time of exposure was not more than one quarter of a second.

Throughout this work we have had the great advantage of the advice and co-operation of Dr. Robert Knox, Hon. Radiologist, King's College Hospital, etc., to whom our thanks are due. The reduced photos were submitted to him, and the observations now made are summaries of his statements concerning each case.

The radiograms were taken under standard conditions. To clear the bowels preliminarily each patient was given a dose of castor oil thirty-six hours before the barium meal, and had no food after tea the evening before the day upon which the meal was given, this being given about 10 a.m. The barium sulphate (4 oz.) was given, well mixed with arrowroot, cornflour, and dried milk, with cocoa as a flavouring material.

Radiograms were taken as follows: At 0 hours (*i.e.*, immediately after the meal), 1 hour, 4 hours, 7 hours, 24 hours, and, in some cases, 48 hours; in one case 72 hours. They were taken with the patient in the upright position, the tube being placed behind the patient.

The following notes indicate the clinical condition of the patients:

CASE 1.—C. J—, *aet. 28.* Duration, about one year. Demented; apathetic; sits or stands in one place; neglects himself; unemployable; degraded facial expression. (Hebephrenic type.)

CASE 2.—C. H—, *aet. 17.* Duration, about 1½ years. Demented; foolish expression and smile; stands in same place; explosive laughter; complete apathy and loss of affection; dirty in habits. (Hebephrenic type.)

CASE 3.—W. G. N—, *aet. 32.* Duration, three years. Demented; dirty in habits; resistive; has a fixed (demented) facial expression; no spontaneity; stands or lies in one place without moving; rigidity of limbs; cyanosis. (Kata-tonic type.)

CASE 4.—L. R. J—, *aet. 22.* Duration, one year or rather more. Demented; smiles fatuously; grimaces and blinks; is impulsive in actions, and sometimes strikes; unclean; somewhat resistive; no spontaneity; completely apathetic; stands or sits in one place. (Hebephrenic type.)

CASE 5.—R. D. P—, *aet. 18.* Duration, about 1½ years. Demented; apathetic; no attention-power; stands in one place; stops in the middle of actions; no volition. (Hebephrenic type.)

CASE 6.—S. A. T—, *aet. 27.* Duration, 2½ years. Marked stupor; loss of expression; bursts of laughter without known cause; requires feeding; neglects herself; stands or sits in same place; very cyanosed. (Hebephrenic type.)

CASE 7.—J. B—, *aet. 21.* Duration, eight to twelve months. Demented, silly expression and laughter; impulsive acts; mucus dropping from nose; cyanosed; wet; stands or sits in one place; no spontaneity; loss of regard for others. (Paranoidal type.) Has had persecutory delusions, but now more of the Hebephrenic type.

CASE 8.—D. V. M—, *aet. 21.* Duration, eight months. Face lacking in expression; stands or sits in the same place; pays no attention, and makes no response;

wets the bed; requires dressing; is fed by hand, and resists feeding; starts doing a thing and leaves it. (Hebephrenic type.)

CASE 9.—B. W. E., æt. 26. Duration, at least three years. Loss of facial expression; listless; untidy; occasionally wets himself; laughs, and makes impulsive movements, pushing people or striking them; sits unoccupied. (Hebephrenic type.)

CASE 10.—J. R. O'B., æt. 19. Duration, about fourteen months. Demented; face lacking in expression; much mental confusion; considerably resistive; disposed to be sudden and impulsive; completely disoriented in time and place; wet and dirty in habits; no reply to questions; grins foolishly; sits smiling to himself. (Hebephrenic type.)

The following is a summary of Dr. Knox's observations upon the radiograms:

CASE 1.—This case shows considerable deformity of the duodenal cap (1 hour) and (24 hours) the first portion of the transverse colon is looped towards the caecum; there is *some delay in the evacuation* of the latter and *slight spasticity* of the transverse colon. The deformity of the duodenal cap may be due to (a) incomplete filling of a normal bulb, (b) pressure of spine, (c) adhesions, (d) "extrinsic" spasm—reflex from gall-bladder, appendix, etc., (e) "intrinsic" spasm, associated with ulceration. Further examination of this patient is indicated.

CASE 2.—The stomach and small intestine are hypermotile. There is no abnormality to note.

CASE 3.—The stomach is of normal size, but is situated to the left of the normal position. The stomach and small intestine are hypermotile. The *transverse colon is ptosed*.

CASE 4.—This is possibly a spasmodic hour-glass stomach. There is *delayed evacuation of the cæcum* and *marked spasticity* of the transverse colon. The films at 48 and 72 hours show *delayed evacuation* of the ascending and transverse colons with rectal accumulation.

CASE 5.—The 24 hours' radiogram shows *delayed evacuation* of the cæcum and the transverse colon somewhat *spastic*, but in 48 hours there is complete evacuation.

CASE 6.—The stomach is situated to the left of the mid-line, but there is no abnormality in contour, size or motility of stomach and intestine.

CASE 7.—Lower pole of the stomach is dilated and situated to the right of the normal position. Very small duodenal cap (? incomplete filling). The transverse colon is looped back in the line of the ascending colon. This obliquely-placed colon may be due to adhesions. There is *delayed evacuation* of the transverse and descending colons with rectal accumulation.

CASE 8.—In this case there is *spasticity* and *delayed evacuation* of the colon, but there is no abnormality of contour, size or position.

CASE 9.—The stomach is placed rather obliquely. The first portion of the transverse colon seems to be curved back to the line of the ascending colon, and at the lower corner a break is to be seen in the shadow, which (7 hours) disappears owing to the increased intra-colonic pressure. The transverse colon ascends obliquely from right iliac fossa (? due to adhesions), and there is *spasticity* of the colon and (48 hours) rectal and colonic retention.

CASE 10.—The stomach is large, dilated, and hypo-tonic; it empties rapidly, but there is no evidence of other abnormality; the meal passes rapidly through the small intestine and colon.

In six out of ten cases there is delayed evacuation of, or retention of faeces in, the large bowel; in one case ptosis of the large bowel. The question of adhesions arises in two of the six cases.

In five out of ten there is spasticity of the colon.

The spasticity of involuntary muscle-fibre is interesting in view of the like condition (rigidity or rigid immobility) noted in respect of voluntary muscle in some cases (katatonic) of dementia praecox.

Chronic Bacterial Infection in Cases of Dementia Præcox. By W. FORD ROBERTSON, M.D., Pathologist to the Scottish Asylums.⁽¹⁾

I HAVE to present the results of an inquiry into the possible importance of chronic bacterial infection as a factor in the causation of dementia præcox. My conclusions are based chiefly upon the study of thirty-two early cases in which it has been possible to make a sufficiently complete examination. I have also investigated by the same methods thirty cases of other forms of acquired insanity, and over 300 cases of nervous and other disorders in persons among the general population. I have to describe the chronic infections I have found in the cases of dementia præcox, and to endeavour to estimate their relation to the malady.

The bacteriological methods that I have employed consist especially in the use of hæmoglobin agar media of various degrees of acidity, and the regular subjection of the cultures to incubation under anaërobic as well as under aërobic conditions. My criteria of identification of species are those laid down in my book on therapeutic immunisation, which do not differ in very many particulars from those of the standard text-books of bacteriology, although in several instances they go beyond them.

Every case of dementia præcox that I have investigated has been found to be suffering from severe bacterial infections, involving especially the intestinal tract. No one of these infections is special to this malady. They may be found in cases of acute insanity and of manic-depressive insanity, and not infrequently among the general public. On the ground of the observations I have made in cases outside asylums, it may be stated as an incontrovertible conclusion that the bacterial infections from which the subjects of dementia præcox suffer are quite incompatible with health.

Whilst the chronic infective disorders of cases of dementia præcox are always multiple, three main types can be recognised, each with its dominating form of infection. These may be termed respectively the pneumococcus, the neurotoxic diphtheroid bacillus, and the anaërobic streptothrix types. The most important associated infections are by *Streptococcus pyogenes*, *Streptococcus anginosus*, the *Bacillus Friedländer*, staphylococci, influenza bacilli, and anaërobic strains of *Micrococcus catarrhalis*.

In order to be able to estimate the significance of these chronic infections in dementia præcox and other forms of insanity, it is of the utmost importance to understand what effects they produce when they occur in persons outside asylums. I shall therefore take each of the three dominating infective agents in turn, and state what I believe can be said to be known about its pathogenic action.

Pneumococci are among the most important of the many bacteria

⁽¹⁾ A paper read at the Annual General Meeting, London, July 14th, 1921.

that attack the human subject. It is now recognised that they form a group containing numerous species, each more or less distinct in its pathogenic action. Pneumococci have been studied chiefly as they attack the respiratory tract. Comparatively little attention has hitherto been paid to their occurrence in the alimentary tract. In my experience chronic pneumococcus infection of the intestine is a fairly common and extremely important cause of ill-health. It is chiefly this action of the pneumococcus as a chronic infective agent in the intestine that concerns us in regard to dementia praecox, and we therefore require to know what symptoms it produces when it occurs in patients whose treatment is in the hands of the general practitioner.

I have records of twenty-seven cases of this kind. For reasons that it is hardly necessary to explain, I have excluded all cases of pernicious anaemia with intestinal pneumococcus infection. A symptom or group of symptoms present in all of these twenty-seven cases was neurasthenia. I believe it is clearly established that chronic intestinal infection by pneumococci is one of the several bacterial toxic causes of this malady. There are, however, commonly added other symptoms, especially attacks of diarrhoea, abdominal pain, or discomfort, loss of weight and anaemia. The following are five examples of cases observed :

A captain in the Army had suffered for three years from neurasthenia and symptoms suggesting bacillary dysentery. It had been ascertained, however, that his stools did not contain the specific bacteria. I found that he had a severe infection of the intestine by pneumococci. There were no complicating infections. Under therapeutic immunisation the patient made a good recovery.

A gentleman, æt. 63, had for over two years suffered from attacks of diarrhoea, alternating with severe constipation. He had lost weight, and was very neurasthenic. The intestinal flora showed about twenty streptococcus colonies to one coliform bacillus colony. On further investigation, about 70 per cent. of the streptococci were found to give the reactions of a pneumococcus, and 30 per cent. those of *Streptococcus faecalis haemolyticus*. Therapeutic immunisation was carried out against these two streptococci and against an aberrant type of *Bacillus coli communis*. Under this treatment the patient made a rapid and complete recovery, and re-examination of the stools four months later revealed a normal flora.

A girl, æt. 2½, had suffered for many weeks from attacks of diarrhoea, which were followed by severe constipation, anaemia, and general malaise. Examination showed a pneumococcus infection of the intestinal tract. Under therapeutic immunisation the child made a complete recovery.

A working man, past middle age, had suffered for several years from slowly-increasing paraplegia. He had become completely bedridden. Cultures made from the stools showed about two hundred pneumococcus colonies to one colony of *Bacillus coli communis*. I believe that, in this case, the chronic intestinal infection was the actual cause of the paralysis, but I have not time to go into the reasons for this conclusion.

A nurse suffered from neurasthenia and anaemia of so severe a nature that she became unfitted for work. An intestinal examination revealed evidence of infection by pneumococci. She was treated by therapeutic immunisation, and made a complete recovery. She has now remained well for several years.

These cases, and many others that might be cited, show that pneumococcus infections of the intestine are commonly attended by distinct signs of neurotoxic action. Comparatively rarely, pneumococcus infections of the respiratory tract may be observed to cause special

nervous disturbances. I have studied several cases of this kind, and have seen the symptoms disappear under therapeutic immunisation.

The second form of chronic infection that I have specially to consider, as it occurs in members of the general population, is that by neurotoxic types of diphtheroid bacilli. The subject is a vast one, and for details concerning it I must refer to what I have recently written elsewhere. I would say here that there is incontrovertible evidence, drawn from all sides, that in the very large group of aërobic and anaërobic diphtheroid bacilli there are many species that are powerfully neurotoxic. The evidence includes the results of cultural observations extending over many years, of experimental work upon lower animals, and of therapeutic immunisation in some hundreds of cases. These neurotoxic actions are quite commonly exhibited among the general population. The respiratory, genito-urinary and alimentary tracts are each liable to attack. Chronic intestinal infection by anaërobic diphtheroid bacilli is the chief toxic cause of neurasthenia, but there are aërobic species that are equally or even more highly neurotoxic. The following are a few examples:

A young lady suffered from symptoms of neurasthenia, complicated by tremor and inco-ordination of movement, affecting especially the lower limbs. A diagnosis of disseminated sclerosis had been made by one specialist whom she had consulted. I found that she had what may be termed a diphtheroid cystitis. The urine was loaded with anaërobic diphtheroid bacilli, and the centrifuge deposit showed a large number of polymorphs. Under therapeutic immunisation she made a complete recovery in the course of about six months, and after a year she remains well. The bacilli have disappeared from the urine.

An elderly lady had suffered for several weeks from insomnia and aggravation of neurasthenic symptoms, to which she had long been subject. I found that the intestinal tract was loaded with anaërobic diphtheroid bacilli. Under therapeutic immunisation against these she steadily improved, and in the course of a few weeks was restored to her usual health.

A young lady employed in an office had suffered for over a year from neurasthenic symptoms and almost complete insomnia. I found that she had evidences of intestinal infection by *Streptococcus pyogenes*, *Staphylococcus pyogenes*, and anaërobic diphtheroid bacilli. I have never observed any case in which insomnia could be attributed to chronic infection by *Streptococcus pyogenes* or by *Staphylococcus pyogenes*, and this symptom must, I believe, be attributed in this case to the action of the diphtheroid bacillus. Under therapeutic immunisation against these infections all of the distressing symptoms gradually disappeared, and within three or four months the patient was completely restored to health.

An officer had been discharged from the Army on account of neurasthenia and tachycardia, which was associated with slight enlargement of the thyroid gland. I found that his stools and urine were loaded with aërobic diphtheroid bacilli. He displayed great sensitiveness to a corresponding vaccine, but gradually improved, and in the course of a year lost nearly every symptom of neurasthenia and the tachycardia.

A young lady suffered from neurasthenia and exophthalmic goitre. The stools and urine were loaded with anaërobic diphtheroid bacilli. The patient was at first intensely sensitive to a corresponding vaccine. After a course of therapeutic immunisation the signs and symptoms of her malady had almost completely disappeared.

Numerous cases of exophthalmic goitre that I have investigated have shown similar intestinal anaërobie or aërobic diphtheroid bacillus in-

fections, hypersensitiveness to minute doses of an autogenous vaccine and gradual recovery under continued therapeutic immunisation.

I could cite scores of other cases illustrating the neurotoxic action of diphtheroid bacilli among members of the general population as distinguished from asylum patients, but these must suffice here.

The third form of chronic infection I have to notice, as it occurs in members of the general public, is one by a group of anaërobic streptothrices, that may be found especially in the intestine. My attention was first directed to them in the course of the bacteriological investigation of the intestinal flora in a case of diabetes mellitus. In 19 consecutive cases of this disease I have found the stools to be loaded with a bacterium of this kind. There are, I think, sufficient grounds, including the evidence of animal experiment, for the conclusion that this streptothrix is the cause of diabetes, and that it acts by injuring a particular area in the bulb. If a streptothrix of this kind can thus injure one portion of the nervous system, there is a presumption that it is capable also of damaging other portions. The further I have investigated the matter the more important has it seemed to become. A large amount of evidence has now accumulated that supports the conclusion that there is a group of anaërobic streptothrices that are highly neurotoxic bacteria, responsible for a very large amount of serious nervous disease, the cause of which has hitherto been entirely obscure. Apart from typical diabetes mellitus, intestinal infections by anaërobic streptothrices are fairly common in patients outside asylums. I have observed fourteen cases. All of the patients suffered from nervous disorders, on account of which they sought advice. These disorders included severe types of neurasthenia, neuritis, paralysis agitans and paraplegia. Several of the patients were very anaemic, and most of them had lost weight and were very thin. All in whom the point could be investigated had glycosuria. The following are some examples :

The wife of a doctor had a history of having been operated upon twelve years before for appendicitis, which was followed by much trouble on account of peritoneal adhesions. Recently the patient had become extremely neurasthenic. She was steadily losing weight, and no turn for the better had occurred after many months. I was asked to investigate. The special interest of the case to me lies in the fact that it is the only one in which I have found uncomplicated chronic infection by an anaërobic streptothrix. The intestine was loaded with an organism of this kind. The patient had the usual glycosuria. I advised therapeutic immunisation against the streptothrix and against *Bacillus coli communis*, as it seemed probable that this bacterium was acting as a secondary infecting agent. The doctor has reported to me that under this treatment the patient is now steadily improving.

A gentleman of middle age suffered from neurasthenia and anaemia, on account of which pernicious anaemia was suspected. An investigation of the intestinal flora showed that he had an infection of some portion of the gastro-intestinal tract by *Streptococcus pyogenes* and also an intestinal infection by an anaërobic streptothrix. There was a large amount of sugar in the urine. This patient is under treatment, but I have had no report of the result.

A girl of about sixteen years of age suffered from neurasthenia, anaemia and cardiac weakness, on account of which she had for many months been unable to

attend school. I found that the intestinal flora was very abnormal. There was great excess of streptococcus colonies, which were ascertained to consist of pneumococci and *Streptococcus faecalis haemolyticus* in about equal proportions. Anaërobic cultures yielded profuse growths of a streptothrix. The urine contained a considerable amount of sugar. Under therapeutic immunisation against these and some other minor infections of the gums the patient steadily improved, and made a perfect recovery in the course of about six months.

A lady between thirty and forty years of age had suffered for over three years from intense neurasthenia, complete insomnia, requiring the constant use of hypnotics, and latterly from mental depression and confusion. The intestinal anaërobic flora consisted almost wholly of colonies of a streptothrix and of diphtheroid bacilli. The urine was full of sugar. This is a recent case, and treatment has not yet been carried out.

The remaining ten cases of anaërobic streptothrix infection were so complicated by other chronic infections that their testimony is of less value. I have, however, obtained striking evidence of the neurotoxic action of these streptothrices from animal experiment. Rats fed with strains isolated from cases of diabetes mellitus have developed not only glycosuria but also a state of profound lethargy and stupidity; some showed extraordinary choreic movements and inco-ordination. In spite of liberal supplies of food they became greatly emaciated, and, in some of them, death was preceded by a prolonged state of unconsciousness suggestive of diabetic coma. In the human subject, the constant association of infection by these streptothrices with nervous disorders, and the very great preponderance of such infection in asylum patients as compared with the general population, are facts that also testify to the neurotoxic action of the group.

Having thus laid the foundations for the superstructure that I wish to build, I pass to the consideration of the chronic infective conditions found in the 32 cases of dementia præcox that I have specially investigated. Seven of them were of the pneumococcus type, 9 of the neurotoxic diphtheroid bacillus type, and 13 of the anaërobic streptothrix type. Only 3 could not be put in any of these categories. Mixed types were almost the rule, and I have classified the cases merely in accordance with what seemed the predominating infection. In all there were other chronic infections, generally of a severe nature. I have accepted the physician's diagnosis of dementia præcox. An endeavour was made, as far as possible, to select early cases. The following are some examples:

A female patient in Roxburgh District Asylum, who was thin and anaemic, was found to have an intestinal flora which in aerobic cultures showed about one hundred streptococcus colonies to one coliform bacillus colony. The normal proportion is just the converse. These streptococcus colonies, on further investigation, were found to consist of pneumococci, *Streptococcus pyogenes* and *Streptococcus faecalis haemolyticus*, in about equal proportions. The coliform bacillus was exclusively the bacillus of Friedlander. The gums, which were intensely inflamed, yielded profuse growths of aerobic and anaërobic strains of *Streptococcus pyogenes* and *Micrococcus catarrhalis*. The urine was loaded with anaërobic diphtheroid bacilli and pneumococci. From the nasal passages profuse growths of the bacillus of Friedlander were obtained. The main fact in this case was the intestinal infection by pneumococci; the other most important infective

agents were, I think, *Streptococcus pyogenes* in the gums and intestines, the bacillus of Friedländer and anaërobic diphtheroid bacilli.

A young lady, somewhat recently admitted to one of the Royal Asylums, was also found to be suffering from very complex infections. The state of her gums was satisfactory, but there was severe chronic catarrh of the tonsils and pharynx. From the fauces I obtained profuse growths of aerobic and anaerobic strains of *Streptococcus pyogenes* and *Micrecoccus catarrhalis*: the nasal passages contained a threading diphtheroid bacillus. The urine yielded abundant colonies of an aerobic diphtheroid. The stools in aerobic culture showed great excess of streptococcus colonies, which were found to consist in about equal proportions of pneumococci and *Streptococcus pyogenes*. The coliform bacillus was the bacillus of Friedländer. Anaërobic cultures yielded profuse growths of diphtheroid bacilli. Here again the leading infection was that of the intestine by pneumococci. The chief complications were infections by *Streptococcus pyogenes*, anaërobic diphtheroid bacilli and the bacillus of Friedländer. This is one of the cases I shall presently refer to as having responded satisfactorily to therapeutic immunisation.

Another female patient in Roxburgh District Asylum showed an extremely abnormal intestinal flora. Anaërobic cultures yielded profuse growths of diphtheroid bacilli, and the only coliform bacillus present was the bacillus of Friedländer. The urine was loaded with aerobic and anaërobic diphtheroids, and there was a chronic infection of the naso-pharyngeal region by *Streptococcus anginosus*. This is an example of the diphtheroid type. This patient, like the previous one, did well under therapeutic immunisation.

A young man in the same asylum was found to have stools and urine loaded with anaërobic diphtheroid bacilli. There was chronic catarrh of the naso-pharyngeal region, which was found to be associated with infection by *Streptococcus pyogenes*, which developed in profuse growths in cultures made from a swab. This patient also responded well to treatment by therapeutic immunisation.

These must suffice as examples of the pneumococcus and diphtheroid bacillus types, and I pass on to the anaërobic streptothrix type.

One of the first cases of this kind observed was that of a boy, æt. 17, in Roxburgh District Asylum. In anaërobic cultures from the stools profuse growths of a streptothrix were obtained. In the naso-pharynx there were infections by *Staphylococcus pyogenes aureus*, and the bacillus of Friedländer. Therapeutic immunisation was applied by Dr. Steele and Dr. Crichton. I am informed that the patient improved, and had to be discharged because he was so well.

A man, æt. 29, in Rosslynlee Asylum, showed intense chronic congestion of the nasopharynx. Cultures from this region yielded profuse growths of *Streptococcus pyogenes*. The urine contained a large amount of sugar: no bacteria of importance were obtained from it. In aerobic culture the intestinal flora was normal; in anaërobic culture it yielded very abundant colonies of a streptothrix and of diphtheroid bacilli.

Another case of dementia præcox in the same asylum, submitted to me for examination on the same day by Dr. James H. C. Orr, was found to have a pathogenic flora almost identical with that of his fellow patient. The only difference was that profuse growths of anaërobic diphtheroid bacilli and *Streptococcus pyogenes* were obtained from the urine.

A gentleman in one of the Royal Asylums, who was selected as a typical case of early dementia præcox, was found to have a large amount of sugar in his urine. There was a *Streptococcus pyogenes* infection of the gums and fauces. The stools showed, in aerobic culture, great excess of colonies of *Streptococcus faecalis hæmolyticus*, and, in anaërobic culture, very abundant growths of a streptothrix. No bacteria of importance were obtained from the urine. As the other infections did not seem to be very severe, this was an almost uncomplicated case of anaërobic streptothrix infection.

A lady patient in another Royal asylum had suffered for over two years from paranoid dementia. I was asked to investigate the case, and found that there

were evidences of severe infection of the intestine by an anaërobic streptothrix; the only coliform bacillus present was the bacillus of Friedländer. Profuse growths of *Streptococcus pyogenes* were obtained from a throat-swab. This case is now being treated by immunisation against these infections, and, if her defensive forces are capable of adequate response, I expect to hear of a good result having been obtained.

The last case that I shall describe is one in which pneumococcus, diphtheroid bacillus and streptothrix infections were combined.

The patient is a youth of eighteen in one of the Royal Asylums. I found that his fauces, which were much inflamed, were the seat of chronic infections by *Streptococcus pyogenes* and *Micrococcus catarrhalis*. The stools, in aerobic culture, yielded colonies of diphtheroid bacilli, pneumococci and staphylococci, in addition to the normal *Bacillus coli communis*. In anaërobic culture they showed very abundant growths of a streptothrix, and of diphtheroid bacilli. The urine contained a large amount of sugar, and was loaded with anaerobic diphtheroids.

The three cases that could not be placed in any of the main categories I have distinguished all suffered from very severe chronic infections. They were among the earliest cases in which anything like a complete examination was attempted, and it is more than probable that some important anaërobic intestinal infections were missed.

It may seem to many that I have asked them to take a great deal on trust, but it must be apparent to all that these things can be demonstrated only in the laboratory. All those who are interested in the matter will be welcomed at the Laboratory of the Scottish Asylums, where, I am confident, a six months' course of practical bacteriology will cure them of all symptoms of scepticism regarding the importance of bacterial infection as a factor in the pathogenesis of the acquired forms of insanity.

I hold that the results I have described have at least shown that extremely severe chronic infective conditions occur in cases of dementia præcox, and that they include attack by bacteria, the action of which is known to be neurotoxic.

What is the relation of these chronic infections to the mental disorder in dementia præcox? If there is any one who has formed the conclusion that they are the result of the mental disorder let him bring forward his evidence. If there is any one who holds that these chronic infections and the mental disorder are entirely independent phenomena, let him also bring forward his evidence: but let me tell him two things in advance: the first is that the only evidence that would be relevant would be observations showing either that dementia præcox can develop in persons free from chronic bacterial infections, or that in cases without permanent brain damage suppression of chronic infections does not result in any improvement in the mental condition; and the second is that, in regard to this point, there is already weighty testimony that

just the converse is the case, namely, that suppression of the chronic infections in early cases is attended by benefit to the patient's mental health.

In my judgment these chronic bacterial infections are the most important of several factors that determine the mental disorder. They are the direct cause of the morbid process in the brain that destroys its efficiency as a mechanism, and leaves it incapable of many normal motor, sensory and psychical reactions. Among the other important factors are the special inherent reactive qualities of the patient and psychic traumatism. We have to explain why only some persons suffering from such chronic infections become insane. It is really not very difficult to do so. Every form of bacterial infection shows a wide range of effect in any group of individuals. In other words, individual differences in power of resistance colour the clinical picture produced by every form of bacterial attack. In the victims of dementia *præcox* we have to recognise a special type of inherent defective resistance to the action of bacterial toxins. This defective resistance would appear to be especially on the part of the nerve-cells of the most highly developed areas of the brain, namely, the association centres. In other words, these unfortunate people have a predisposition to fix certain toxins in their higher cortical nerve-cells, and when they suffer from severe neurotoxic infections their association centres quickly become damaged instruments that can respond to the play of the environment only by more or less discordant notes.

How are we to prove whether these possibilities are in accord with fact or not? We cannot settle the matter by simply multiplying bacteriological investigations in the sane and in the insane, for it is not a question of a specific infection causing dementia *præcox*. Animal experiments will not help us very much. Nevertheless, I believe the problem is capable of solution. The most direct and satisfactory plan is simply to employ therapeutic immunisation against the existing infections in a series of early cases before the brain is irretrievably damaged, and to observe if, in addition to benefiting the physical health, as in persons outside asylums, we can arrest the ordinary progress of the mental disorder.

It has been impossible for me, as yet, to pursue this part of the inquiry very far. It was essential that much should first be known about the infective conditions before therapeutic work was attempted on any large scale. Such observations as have, however, been made for me, and the few that I have been able to carry out myself, have given results that are very encouraging.

I would mention a series of cases treated at Roxburgh District Asylum, first by Dr. Carlyle Johnstone, and later by the present Medical Superintendent, Dr. Patrick Steele, and their assistant, Dr. Charles

Crichlow, to whom I am greatly indebted for his keen practical interest in the matter.

Distinct improvement has been noted in at least 7 cases in the series, and 4 of these have been discharged from the asylum as recovered. A case of the diphtheroid type, complicated by chronic infections by *Bacillus influenzae* and *Streptococcus pyogenes*, treated by Dr. Orr at Rosslynlee Asylum, made a remarkable recovery, and was discharged. Distinct improvement has also been reported in several cases treated for me by Dr. Campbell and Dr. Gostwyck at Larbert Asylum. A case of the pneumococcus type under the care of Prof. George Robertson, to whom I am indebted for permission to carry out therapeutic immunisation, steadily improved from the first dose, and now, after only six weeks' treatment, instead of showing all the typical signs of a grave case of hebephrenia, is bright, active, responsive in conversation, says she feels ever so much better, and, to an ordinary observer at least, seems quite rational. A case of the streptothrix type, also under the care of Prof. George Robertson, and treated at the same time as the other patient, has certainly improved. He has become bright instead of dull, has lost his delusions, talks more rationally, and has repeatedly stated that he feels much better in health. I am encouraged also by the result obtained in the case of a young man whom I had known for over a year to be curiously dull mentally. I found that his urine contained sugar, and that he had well-marked anaërobic streptothrix and diphtheroid infections of the intestine. After ten weeks' immunisation against these bacteria the state of his health has been completely changed. He is now bright and alert, converses freely and intelligently, and is himself well aware that he has benefited in a remarkable way from the injections. When he called recently for his tenth and last immunising dose, I asked him to tell me in his own words what was the chief difference he felt, and he replied, "I feel that something has gone that was oppressing me." This case teaches, I think, the great importance of diagnosing and treating these neurotoxic infections at an early stage.

In concluding, I would say that it is my conviction, founded upon years of practical study of the problems presented by the pathology of insanity, that it is along such lines that we shall in course of time succeed in exercising an important measure of control over the large group of the acquired forms of mental disease, which includes dementia præcox, acute insanity and the affective psychoses.

It is my duty to make acknowledgment of the help I have received from those who have given me facilities for examining not only the cases dealt with in this paper, but also many other cases, the study of which has led up to this later series. I am greatly indebted not only to those who have already been named, but also to Dr. J. H. Skeen,

and his assistant, Dr. Jardine, Dr. C. C. Easterbrook, Dr. Neil T. Kerr, and Dr. Dunlop Robertson, as well as to assistant physicians at the Royal Edinburgh Asylum, including Dr. Henry Yellowlees, Dr. William McAlister, Dr. E. M. Johnstone, Dr. Bell Emslie and Dr. Neil McLeod.

(The discussion which followed will be found on pp. 543-6, vol. lxvii, October, 1921.)

The Oxford Clinic.⁽¹⁾ By T. S. GOOD, O.B.E., M.R.C.S. Eng., I.R.C.P.
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THE Oxford Clinic for Nervous Disorders first came into official being in the beginning of 1918, when the Committee of the Radcliffe Infirmary did Dr. W. McDougall and myself the honour of appointing us as Physicians-in-Charge of this department, and asked us to organise and run it. It was started with an out-patient department one afternoon a week and was entitled the Department for Nervous Disorders. This term was chosen as it was hoped that it would induce all classes of nervous cases to apply for treatment. Particularly for those cases which show mental symptoms was this title chosen, in the hope that such patients would come to the clinic without feeling they were being specially branded as "mental." Opportunity would be given for treatment, and possibly improvement or even cure might be effected, and thus certification, which every one of these cases most dreads, could be avoided.

A case-sheet was designed and carefully discussed, then printed on the loose-leaf system. Dr. McDougall and I considered a case-sheet essential in order that records should be kept of all physical changes in the nervous system. This was more especially necessary, we felt, in that we were hoping to deal with physical and psychic cases, and though in mental cases it is perhaps impossible to design a case-sheet to cover all signs and symptoms, this is not so as regards the physical. The sheet is so arranged that a routine examination of all motor and sensory signs is recorded, both negative and positive, commencing at the head and proceeding systematically through the body, with spaces for family history, past and present, and personal history of the patient. We felt that as we were dealing with mixed cases, in which the diagnosis is often difficult as regards whether the disorder is functional or organic, or both, that it was absolutely imperative to have a record not only of positive but of negative symptoms, and also to ensure, as far as possible, that a routine examination should be conducted in every case. I think we were greatly influenced in this respect by what I may perhaps call the "omissions" which had come under our notice on case-sheets of such

(¹) A paper read at the Annual Meeting held in London, July 13th, 1921.

patients during the war. We often found that only certain reflexes and signs were recorded, no mention being made as to whether others were present or not. For instance the knee-jerks might be mentioned, but the plantar reflexes were not unless they were extensor.

It is, in our opinion, absolutely essential to record as accurately as possible the state of all reflexes, both superficial and deep, whether normal or abnormal, as it appears probable that many cases which were labelled "functional" might later prove to have some organic basis. Early cases of disseminated sclerosis and tabo-paresis, for instance, often in the initial stages show very little, if any, organic change. At first sight they present all the symptoms of a purely functional nature, but they do not clear up under psycho-therapy. Thus it would appear imperative that careful records should be kept, not only for the reasons already advocated, but also with the idea of helping to solve the question as to whether prolonged functional disorders may eventually develop into organic. A careful examination is also, I believe, in many cases, a great psychic help in obtaining the co-operation of the patient in his treatment.

The Oxford Clinic is held at the County Hospital, and there are many and great advantages in being attached to a general hospital :

(1) Borderland or more advanced mental cases do not object to presenting themselves, or their friends do not mind bringing them for advice ; whereas they will shun anything of the nature of a mental institution until so ill that to go there appears the only course left open to them.

(2) At a general hospital there is easy access to every other department, such as eye, ear, V.D., electrical, and massage, and the opinion of another specialist is therefore not only available, but the department now under survey is brought into close touch with other branches of medicine and surgery to their mutual advantage. I feel that in the past there has been too great a cleavage between the mental and organic sides of medicine, to the detriment of both.

(3) It enables team work to be carried out. Many cases in the clinic of a partly organic and partly functional nature would appear to improve more rapidly under two specialists working in unison than under one department : for instance V.D. cases often develop mental symptoms which psycho-therapy will relieve, or orthopædic surgery may be assisted in the after-treatment or *vicē versa*. In fact with proper collaboration there are hardly any departments which cannot be of mutual help. The importance, too, of having access to a V.D. department is immense, and I venture to think a Wassermann blood test might be adopted as a routine in every case in which there is the least suspicion of nervous disorder.

The question of in-patients at the clinic has been considered, and the

original plan was to have had about twenty beds allotted at an extension of the Radcliffe Infirmary at Headington. Up to the present, however, owing to lack of funds these beds have not materialised. This question of beds attached to a nervous-disorders clinic is a difficult one. In many of the cases in-patient treatment is not only unnecessary, but in my opinion even harmful.

In the neuroses there is always an unconscious reason, *i.e.*, some decision the sufferer fears to make and wishes to avoid, and the illness is an attempt at adjustment: they fear their own psychic death, their symptoms are an unconscious question. Therefore it would appear that in most cases to take such patients into a hospital would be likely to increase their malady, for the reason that by this step their unspoken question is being answered and confirmed by the physician, *i.e.*, if they are ill enough to be taken into a hospital it must be as they feared, and they are in danger of psychic death, and that the doctor has agreed with this because he has admitted them to hospital. Also unconsciously they have thus avoided for a time making any decision or effort—the very thing which was the primary cause of the illness.

Out-patient treatment for these cases is, to my mind, and in my small experience, the best. As an out-patient the case has at once one question answered, "The doctor does not think me hopeless." This immediately strengthens the transference, and then analysis may unravel the mental tangle and the patient may be possibly improved or even cured.

As an illustration of the great possibilities of out-patient treatment of a case with suicidal tendencies, I may mention I have recently treated a young school mistress who was brought to me by her father and sister, and who, I was told, had made an attempt at suicide, and was threatening suicide, they said, at the time I first saw her. The father maintained that she needed to be under control. I risked the suicide and treated the case as an out-patient by analysis, which proved that the suicidal threats were an unconscious attempt at a solution of her conflict, which was the fear of death, both physical and psychical, the latter being insanity. This started as a child with fear of the mother's fits of rage, and the idea that her mother was mad. The father, for whom she consciously had a great attachment, she despised unconsciously because of his domination by the mother. Fear of her mother forced the girl to withhold all questions on the various sexual problems of a growing girl, which consequently she and her sister attempted to work out for themselves. Undue dependence on the sister was the result, and the death of this same sister caused a severe attack of depression, with, it was stated, an attempt at suicide. The girl partially recovered from this by repressing the whole circumstances. The recent breakdown was brought about by a severe shock to her love affairs through

anonymous letters from a rival. She had been loving her *fiancé* as her father on account of her sexual repression due to a forgotten episode, which occurred at a very early age when she had heard a woman shrieking in childbirth. The analysis was prolonged, but I may here state that the girl resumed her teaching, and has lately called expressly to tell me that she has lost all fear of insanity and that she feels she is now well.

Suicide of a patient has its horrors for the physician, but perhaps the risk is much greater in our imagination than in actual fact. I feel sure that had in-patient treatment been adopted in the case above mentioned, recovery would have been jeopardised.

I think I may say that out of the 149 civilian patients whom I have personally treated at the clinic during the last three and a half years, excluding organic cases, I have only been really anxious to find accommodation as in-patients for three children, who would probably have been cured quicker and with more ease had it been possible to remove them from parents or relations, who tended rather to aggravate than to cure their disorder.

Of the adults two cases have required certification, one of senile melancholia and the other an old-standing case of dementia *præcox*. Both these were of long duration, and were only fit for treatment in a mental hospital. One case of senile melancholia with marked hypochondria, who was an in-patient for bronchitis under one of the physicians, apparently improved under treatment and was discharged, but later committed suicide at his own home.

No acute toxic mental cases (and amongst these I include puerperal and confusional cases) have up to the present applied for treatment. Such cases would, of course, require in-patient treatment, and I am of the opinion that a special ward in a general hospital is the best place for them in the earlier stages until one is convinced that recovery is unlikely. It appears to me that the sooner the general hospital is linked with the mental hospital, by having on the staff a psychiatrist with beds at his disposal, so much the sooner shall we be able to remove from the mind of the public the obstructing idea that mental disorder is a disgrace carrying with it an everlasting stigma. Except where there is a definite organic disease associated with the mental disorder, as in general paralysis, alcoholic, traumatic, and toxic psychoses, as far as my personal experience goes the clinic would tend to prove that manic-depressive, obsessional, impulsive and non-systematised delusional mental disorders are mainly environmental in their origin.

Not only are civilians treated at the Oxford clinic, but discharged soldiers suffering from nervous disorders have from the beginning been sent there by the Pensions Committees of Oxfordshire and the surrounding districts.

In fact in the earlier months the pensioner patients were far in excess of the civilians. As I stated at the commencement, we gave one afternoon a week for treatment, but as civilians increased and pensioners continued to come in great numbers, we found it necessary to give two afternoons, and that still continues. The waiting list of pensioners is not so large, but the number of civilians applying for treatment is greatly increasing. When Dr. McDougall went to America his place at the clinic was taken by Dr. A. T. Waterhouse.

Speaking as the Medical Superintendent of a Ministry of Pensions Neurasthenic Hospital, namely Ashurst Hospital, Littlemore, the fact that I have only taken in three pensioners to Ashurst from Oxfordshire and district during the last two years is, I think, a very strong proof that in most cases out-patient treatment for a pensioner is far the best. I have treated 344 pensioners at the clinic and I would like to emphasise this point: I consider that to the neurotic pensioner in-patient treatment, except in a very small percentage of cases, is even more harmful than to the civilian. I am, of course, excluding organic and such other toxic cases as I mentioned before would necessarily need in-patient treatment.

With pensioner and civilian the illness is the same though the cause may be different, and yet a greater difference lies in the condition under which each comes for treatment. The civilian comes of his own accord and with everything to gain by recovery: the pensioner comes often only because he is forced, and if he recovers he will lose his pension. The civilian probably has work which he can carry on during treatment: the pensioner has often been in hospital, thereby losing his job or possibly a business of his own, and enfeebling his body, therefore he comes for treatment with the added anxiety of unemployment.

During the last year a large percentage of pensioners presenting themselves for treatment have shown toxic and organic troubles of some kind, such as rheumatism, malaria, V.D.H., neuritis, old head and spine injuries which unfit them to compete with sound men in their work. In these cases the anxiety caused by this incapacity to support themselves often masks the real organic mischief. These men have been discharged from the Army labelled "neurasthenia," and sent to one hospital after another, an unconscious suggestion having accompanied them that all their complaints are but figments of their imagination, and consequently these complaints have been treated with suspicion. Such cases are often confused with the malingerer. Time and patience alone may enable us to find the cause of the illness and they may improve with treatment. Both for their own sakes and also from an economic point of view these cases have a better chance of improvement under treatment at an out-patient clinic, where they

can live at home and do some work, than they will ever have in a hospital. Thus it will be clearly seen that the treatment of the pensioner is far more difficult than that of the civilian, as the physician has to cope with the pension and unemployment complexes in addition to the ordinary difficulties in dealing with the neurotic.

I will now briefly mention the methods of treatment used at the Oxford Clinic.

To a certain extent drugs and physical methods are employed, especially with the semi-organic cases, massage being included. This, however, is only used in the cases in which there has been loss of mobility of a limb and as an aid to psycho-therapy. In other words massage is employed to help the nutrition and also to assist relaxation of the opposing muscles, but it is only used with careful explanation of the reason of its employment, and the patient is instructed as to how to co-operate and re-associate the lost movements.

Psycho-therapy : (1) Persuasion, in which the cause of the neurosis is explained to the patient, combined with a stimulation of his interest and determination to recover, and a re-education of his mental and physical processes. (2) Suggestion, which includes (*a*) waking suggestion, (*b*) suggestion under hypnosis. (3) Hypnosis. (4) Analysis. I mention analysis last as being the hardest, the most scientific and thorough of all methods of psycho-therapy, though I think in order of merit it should come first.

There are many reasons why analysis cannot always be employed—time, the number of patients to be dealt with, and last but not least, the fact that only a certain percentage of cases can be treated by this method.

Personally I use any of these methods according as to which I feel may be suitable to the case. Time prevents me from illustrating the results of these different methods of treatment. I should like, however, to state that I have mainly used hypnosis for recovering war-amnesias and for inducing sleep ; and as far as possible never do I use hypnosis with deliberate suggestion as a method of cure except as a last resource, as I never feel sure how long the good results obtained by suggestion alone are likely to continue.

In order to endorse any statement I have made as to the result of treatment of pensioners at the clinic, I would like to quote some remarks and read some figures as given to me by the D.G.M.S. of the Oxford Area.

He states as follows : In my opinion, in a large proportion of the cases treated at the clinic there is definite and distinct improvement. Of those patients who have been discharged from the clinic as requiring no further treatment, very few have relapsed. Most of the men are at work, and but for the fact that there is a slight residual trace or undue

tendency to neurosis to be detected they appear well, and in 40 or 50 per cent. their pension is only 20 per cent. or less. The number of high assessments is extremely small.

The following figures give the number boarded and the pensions assessed in the last four months, and in the opinion of the D.G.M.S. the number of high percentage pensions is unduly high in this period as compared with the average for the whole year.

Of total number (65) boarded : 2, or 3 per cent., were assessed at 80 ; 3, or 4 per cent., at 70 ; 3, or 4 per cent., at 60 ; 4, or 6 per cent., at 50 ; 9, or 14 per cent., at 40 ; 14, or 21 per cent., at 30 ; 24, or 38 per cent., at 20 ; 6, or 9 per cent., at less than 20 per cent.

The average percentage of assessment for the whole number during that four months is 30 per cent. pension. These figures include patients still waiting for treatment and also some organic cases. During the whole period less than five cases have had to be certified in this area. In the last two years only three cases have been admitted to a neuras-thenic hospital :

- (1) A case of alcoholic and syphilitic dementia.
- (2) A case who was waiting for training had depression and a hostile environment.
- (3) A case from the permanent staff of the Ashhurst Hospital—the only survivor of H.M.S. "Vanguard," who had never mentioned that he had been subject to fugues about the date of the catastrophe.

These figures I submit support the contention that out-patient treatment for pensioners is probably better in most cases than keeping them in expensive hospitals, both from the point of view of the health of the patient and the expense to the State.

As regards civilians, the increasing numbers presenting themselves for treatment is perhaps the best evidence I can produce, that an out-patient clinic for nervous disorders will well repay every member of our branch of the medical profession who gives his time to trying to treat and understand every form of nervous and mental disorder.

(For the discussion which followed see pp. 525-534, vol. lxvii, October, 1921.)

Psychology and Psycho-therapy.⁽¹⁾ By WILLIAM BROWN, M.A., M.D.Oxon., D.Sc., M.R.C.P.Lond., Wilde Reader in Mental Philosophy in the University of Oxford.

WHEN your President did me the honour of asking me to read a paper before this Association, it occurred to me that a subject not lacking in topical interest at the present day might be such an one as the relation between suggestion and psycho-analysis. But, on second thoughts, I felt that this would be giving undue emphasis to a tendency

⁽¹⁾ A paper read at the Annual Meeting held in London, July 15th, 1921.

at the present day that does not need encouragement, and perhaps one may say should not be encouraged. There is just now a strong tendency towards a turning away from earlier modes of thought with regard to the science of psychology, almost a looking down upon its past history and attempting to form a new science ready-made upon the basis of certain modern theories and observations. And you have a group of people who talk proudly of "the new psychology," although, when you go into their antecedents, you find that the majority are themselves new to psychology. And you find that, in their intellectual ambition, although they may start out from facts of pathological psychology, they are ever more anxious to extend their generalisations, mainly based upon those facts, to wider and wider problems of human nature, of sociology, and of civilisation. So that at the present day there is a danger of a new philosophy,—I might call it following the William James nomenclature a chromo-philosophy—being built up on the basis of certain observations, and worked out in undue dissociation from earlier modes of thought. As to many others, it seems to me that at the present day we need to recognise that we must work according to certain criteria that we can trust, according to certain methods that we can verify. Verification has always been the rule in scientific work. From the time of Plato onwards it has been realised that all science proceeds by the method of generalisation, by the method of producing hypotheses; but these do not become scientific theories until they have been verified and confirmed in various directions and according to various criteria. In the physical sciences this verification is not only allowed for, but it is ensured by the nature of the work that is done. In physics, for example, you have measurement there, at your elbow, to keep you straight. Although the principles of measurement themselves involve certain assumptions, certain postulates, still, having accepted those, you have a very sure instrument of testing. Your general theories in physics are tested and fixed by the measurements made. And so also with other physical sciences which are based upon physics; in chemistry, even up to biology and physiology, you have similar safeguards. In psychology the attempt has for some years—ever since Wundt founded his first laboratory for physiological psychology—been made to bring in a similar controlling factor on the quantitative side. But the attempt has perhaps rather disappointed us in its outcome at the present time, though, no doubt, it has great victories in store for it in the future, when a full realisation has been reached as to the difficulty of measurement in psychology. Still, apart from this, psychology is in the difficult position of being descriptive, of being impressionist, lacking that hard exacting previous training which you get in the other sciences. But I say this with certain reservations which I hope will remove its sting. It is peculiar in being supported, mainly, on two great piers or

pillars. On the one side you have mind as embodied mind and its relation to the physical organism : and so you find growing up a psycho-biology which is thoroughly scientific, and which is linked up with the general body of physical and physiological knowledge, which has been pushed forward, in our country particularly, by such men of brilliant ability as Lloyd Morgan, McDougall, C. S. Myers and Rivers. And in studying a science like that of psycho-biology you have every security for gaining strict modes of thought and carefulness in investigation, and also of gaining a scientific conscience in the matter. The other pier is that of philosophical psychology, which, it seems to me, is of extraordinary importance, absolutely essential to the science. Psychology is different from every other science we know, in that it is the science of the mind, *i.e.*, of something which itself is the instrument of all knowledge. In the mind we have problems of knowledge arising ; how the individual mind can know the external world, not only adapt itself in a rough-and-ready way, but get deeper knowledge, theoretical as well as quasi-practical knowledge of the world. Besides, it is through the mind that we can appreciate the beautiful, as distinct from the ugly, and the concept of duty and good, as distinct from evil. And, whatever may be our distinctions, however our systems may vary from one nation to another, or from one generation to another, yet all through, in the science of ethics or moral philosophy, from the time of Aristotle onwards, it has become more and more apparent that there must be assumed an insight into moral values which gradually grows in the course of life. So you have a problem which is essential to psychology which cannot be ignored by any psychologist, and which certainly cannot be ignored in pathological psychology. And that is why I would, in passing, put forward a plea for the continued study of philosophy in relation to psychology. I may be considered to be reactionary in this but I do not think so. It seems to me that it is essential, that it is called for by the nature of the science ; and also that it is justified by results. On this side we have a very solid system of knowledge which is much more consistent and much more universally accepted than some people who are not particularly interested in philosophy may believe. Works like those of James Ward, Stout, and William James are in harmony with one another. The differences are very slight as compared with the resemblances, and it seems to me that this part of psychology, too, is essential for psychopathology : I hope to show you why presently. The difficulty in medical psychology is to build a bridge between the two piers, or to complete the arch linking up these two solid, well-established and difficult modes of thought. And here a number of people rush in with facile generalisations, with a ready use of metaphor, with a tendency to lack of criticism which is astounding, and a general theory that is unsupported by any single psychologist you can

name in any country. This general theory or mixture of theories is popularly known as "psycho-analysis." The name is an unfortunate one, since it is used interchangeably for a particular psychological method and for the theory or theories based upon the results obtained by this method. It were better restricted to the former of these two things—the method of "free" association invented by Freud. Psycho-analysts deal with psychological concepts, but if one analyses their concepts one finds there is a tremendous degree of metaphor which is most misleading. I have no time now to illustrate that in any detail, though it can be illustrated, and I am sure it will be illustrated in the next few years. We shall have a united attack upon the general system of psycho-analysis from the point of view of psychology, because we shall have gained enough knowledge of the subject and practice in carrying out the method to be fully justified in giving our views. But there are problems here which are better attacked by a similar method than by any other. These are especially the problems of psycho-pathology. You have all no doubt felt a certain degree of disappointment after studying experimental psychology, and found how little, apparently, as yet it admits of application to your science. It does admit of application. The Binet tests, *e.g.*, and the various forms of the three psycho-physical methods which have been applied in numerous forms of mental testing are due to experimental psychology and to the efforts of earlier experimental psychologists. Methods of measurement are all based upon one or other of these three great psycho-physical methods of Fechner, and in the future, no doubt, more will be done; at the present time much is being done. Still, up to the present no very great increase in our knowledge of psycho-pathology has resulted from this mode of approach. Methods have been devised, mainly towards the measuring of symptoms and classifying them, and stating them as accurately as possible, and only now is an attempt being made to go deeper and measure the causes of symptoms and get a deeper view of them. In the meantime we have this temporary structure of psycho-analysis, a term invented by Freud to correspond to a definite method, one method among others, of free association, which had as its presupposition a belief in subconscious tendencies of the mind which were held down by certain repressive forces; and that if the critical faculty were kept in abeyance, these subconscious tendencies would move gradually up to the surface of the mind and appear in consciousness again. It is merely a method of evading resistance, and keeping the critical faculty out of action. Besides connoting the method of free association, psycho-analysis also connotes a theory, and the term is used interchangeably by psycho-analysts in these two senses. Psycho-analysis is a theory of Freud and of his disciples, and his disciples have added little to what he has said, and have made

practically no alteration in his views. It is a theory which regards all psycho-neuroses, all forms of psychical disturbance in nervous disease where there is no obvious or demonstrable organic injury as explicable in terms of repressed sexuality, although that word is used in a wider sense than usual and to cover many forms and modes of mental activity in childhood, which no one who was not a Freudian would dream of bringing under that heading. It is a theory which assumes many mechanisms, though mechanism is a bad term to use in psychology. There is a general mechanism of repression; there are the factors of displacement, transference, distortion, sublimation, etc. Words like these correspond to forms of mental process, which are all called in as supports of the theory. The method is that of free association; and in attacking the findings of the method we must consider the implications of the method itself. But, besides that, we should ourselves use the method. Jung was right when, before the war, he taunted his opponents with the criticism which Galileo brought against his opponents, that they would not use his telescope. But many people have now used this telescope and have shown a clear understanding of its nature, using it in a thoroughly unexceptionable way, but have yet failed to obtain results in entire harmony with Freud's theories, or with Jung's theories. Great as is the value of these theories for psychopathology, blindly uncritical adherence to them on the part of inexperienced disciples is wholly detrimental to the science.

At the beginning of my address I mentioned the problem of the relation of suggestion to psycho-analysis, and, if I may, I should like to make a few remarks upon this, because it should go to the heart of the difficulty of psycho-analysis, and the difference in views between extreme psycho-analysts and others. According to the theories of psycho-analysis, the symptoms of psycho-neuroses are due quite generally to mental conflict and repression, the symptoms being "compromise-formations," satisfying, as well as may be, both the repressed tendencies and also the main personality which has endeavoured to disown them. And a cure, in general terms, is by the method of free association and by other methods devised to evade the resistance between the repressing and the repressed material, between the ordinary conscious mind and the repressed mind, to allow the repressed material to come up again, and then to encourage the process of "sublimation," whereby these tendencies are diverted along other paths and towards other objects. That is one line of thought at the present day. It is complicated in extraordinarily intricate ways in the specifically Freudian form of theory and is further modified in others, but that is the general line of movement. And there is another line of thought which has been in existence for many years, a line which is summed up in the ideas of auto-suggestion and hetero-suggestion. According to this--to go back as

far as F. W. H. Myers—there is the conception of the sub-conscious mind as that part of the mind below the threshold, which possesses faculties or powers in an intimacy of relation to the physical organism which is denied to the conscious mind. So you have F. W. H. Myers giving as his definition of suggestion “a successful appeal to the subliminal.” If you turn to that excellent modern book of Baudouin’s, *Suggestion and Auto-suggestion*, you find suggestion defined as “the subconscious realisation of an idea.” This definition contains two parts. There is, firstly, the aspect of acceptation—an idea which is brought from the outside is accepted by the sub-conscious. (Not by the conscious mind, because if it is accepted and acted upon by the conscious mind you have another kind of mental process which is not suggestion in the narrower technical sense.) But, secondly, the idea which is accepted by the subconscious or unconscious mind is realised by it, often in secret, often with a latent period between the moment at which it is accepted and the moment at which it makes itself apparent in clear consciousness. You have here a technical definition of suggestion which can be employed to explain the causation of mental illness, or at least certain aspects of illness in psycho-neurosis, and also to explain their cure. You might say that illness sets in as a result of bad auto-suggestion, coming from the conscious mind acting on the subconscious mind, and producing, after a period of incubation, a result in clear consciousness. And in treating these patients you would endeavour, by good hetero-suggestions, to neutralise previous bad auto-suggestions and rectify mistakes.

How can these two lines of thought be harmonised with one another? The former, *viz.*, analysis, is obviously a correct line of thought, however anxious we may be to avoid the extravagances of its development in certain minds. It corresponds with real factors at work, as we see when we begin to analyse. Must we say, with the psycho-analyst, that it is a complete explanation of cause and cure? I think the evidence is against this. But let me consider it in an *à priori* way. We might, *à priori*, say that as a result of mental conflict in early years one might expect to get a weakening of the mind, a weakening of mental synthesis, with the resultant tendency to be more readily overwhelmed by emotion, more readily carried away by certain ideas, especially if they are supported by certain feelings; and that in this way our subconscious is more ready to accept fortuitous, bad auto-suggestions coming down from consciousness. So you can have both general factors at work in aetiology—mental conflict and repression, and also bad auto-suggestion. And so, as regards cure, you can by analysis resolve these mental conflicts; you can, at any rate, help the patient to see the relationship between the systems or streams of ideas which have been in conflict, and help him to make up his mind as to what line he

should take to overcome the physiological and psycho-physiological effects of repression, and so improve his condition. But, also, there is an habitual mode of response which you have to destroy and which is resistant to analytic treatment and needs suggestion. That suggestion may come in two ways ; it may come in an informal way in the course of the psycho-analysis itself. This is the unconscious suggestion which springs from the emotional relation of patient to physician which Freud calls *transference*. But suggestion treatment may then be given in a more formal way. This is most conveniently done by asking the patient to lie on a couch with the muscles relaxed, in the posture in which he usually sleeps, either on the back or on the side, and to think of sleep in a passive way, not in an active way—to avoid voluntary attention and yet to get concentration. The mental state must be one of attention, but it must be attention *minus* effort, because voluntary attention means the mind moving from one thing to another on the conscious plane. If you encourage the patient to relax all his muscles he cannot attend voluntarily, yet he can get conscious concentration or "*collection*" in which his conscious mind is in a state of minimal activity, where there is an outcrop of the subconscious, and he can accept suggestion. It is not necessary for him to sleep ; there is no question of hypnosis ; you are not producing an artificial dissociation, you are merely producing artificially a normal form of dissociation, such as occurs every night when we go to sleep : it is a half-waking state. It is because these suggestions do take effect that one theorises about the matter ; it is not that the theory came first. The results came first, and in looking for a theory we have to assume the subconscious and the way in which this subconscious reacts to appeal. And we find by experience that it is essential that the will, at least in its less developed spasmoidic and impulsive form, should be in abeyance. The patient must not have in mind the idea, "I have a certain time, which I am paying for, I must go to sleep." If he feels that, he will not go to sleep. And if he is too determined and spasmoidic you will get no results, or there will be an opposite result ; he will get worse, not better. M. Coué, of the new Nancy School, has been the first to enunciate this in the form of a law, the Law of Reversed Effort, and it had been insisted by British investigators that you must avoid voluntary activity, that suggestion is something which is passively accepted. It is that attitude of acceptance and feeling of belief, free from effort and from over-anxiety, which is essential. Any element of fear neutralises the result. Coué sums up this law of reversed effort in the words : "When will and imagination are in conflict, imagination always wins." By imagination he means what is ordinarily known as suggestion. Coué says that in this conflict between will and imagination the imagination varies roughly as the square of the will ; so that if you

increase the effort of the will two-fold, you have increased the opposing power of imagination four-fold. If you suggest, in the hypnotic state, that a man cannot open his eyes, he may not try. If you say, "Try as hard as you like, you will be unable to open your eyes," the more he tries the more tightly closed the eyelids become. That is a process which well illustrates this law of reversed effort. Another illustration is the effort to remember a name. If you are over-anxious to remember it, you find the name has disappeared. But if you say, "It will come in a moment," and you relax the intensity with which you try to remember it, it does come to you. Another is when you carry out a skilled action, such as swimming, or riding a bicycle. When you can just ride a bicycle you say, "I will not go over that stone," and the more determined you are to avoid the stone, the more surely will you steer your bicycle towards it. That point needs emphasis, because ignorance of it, or at all events the ignoring of it, accounts for much failure in suggestion treatment. Those of us who have spent much time on suggestion treatment and look back on our partial failures can see that much of our failure was due to our not being on the look-out for this law of reversed effort. How is it explained psychologically? In this way. When you will to do a thing in an over-anxious, spasmodic way, your mind becomes acutely conscious of what you are aiming at, with the result that the idea of possible failure is aroused, and that brings with it the emotion of fear. The emotion of fear may be subconscious, or it may be clearly conscious. So that there is a suggestion-effect in an opposite direction; this is reinforced by the emotion of fear, and there is an unsatisfactory result. As long as one takes into account the law of reversed effort and does not do violence to it, one gets extraordinary results by suggestion treatment following upon psychological analysis, if one uses the cumulative method. I take a patient an hour at a time, and I give suggestions every five or ten minutes during that hour. They are general suggestions as well as particular ones; I do not make him over-suggestible in the ordinary sense, I simply make use of the ordinary suggestibility which becomes prominent as he falls to sleep, owing to the greater accessibility of his subconscious. After the first five or ten minutes I leave him to himself, with the instruction that he should go on thinking of sleep, though whether he actually sleeps or not does not matter. At intervals of five to ten minutes throughout the hour I return and give the requisite suggestions as to the disappearance of his symptoms, and of their underlying causes, where known or suspected. I also suggest general improvement in health, and state that he will be able to use auto-suggestion, and so complete the cure by himself.

This is one way of applying suggestion, and I think it is psychologically sound, and involves no drawbacks. As long as you avoid hypnosis, and as long as you explain to the patient how it differs from

hypnosis, it is successful; though the Nancy school talk about hypnosis and suggestibility being interchangeable, they differ from one another. Shell-shock patients seen immediately after the shock were easily hypnotised, but were not always very suggestible in the hypnotic state; hypnotisability was, however, found to be completely correlated with dissociatedness; the more dissociated a person was, the more hypnotisable he was.

And now with regard to the other way of applying suggestion to analysis. This is partly unconscious, where the patient is analysed hour after hour, and is given to understand that the analysis will be a protracted one, and will involve re-arousal of early memories and fantasies of childhood, after which recovery will occur. The result may be that the patient is resistant until deeper and deeper analysis occurs, when the symptoms may clear up. But when they do clear up you cannot say suggestion has been absent. Although in test cases you can prove that the overcoming of repression, the liberating of "bottled-up" emotion, etc., do get rid of the symptoms, apart from suggestion, yet in psycho-analysis there must be much suggestion all the time. There is suggestion in the form of what Freud calls "transference," or "emotional *rapport*" between the patient and the doctor. According to French the patient feels towards the doctor a second edition of the feelings which he felt towards his father, mother, or other near relative in earlier life. Freud admits that this emotional *rapport* is essential in cure; because without it, after the temporary readjustment and overcoming of the mental conflicts, the repressed material would fall back into the unconscious once more, and the patient would be where he was before. But, according to Freud, this transference may be, and should be, resolved by being traced back to the *oedipus complex*. It is, however, doubtful whether this theory of transference applies at all. In different analyses there are all degrees of emotional *rapport*, every degree of emotional attachment. Certain emotions are excited more and more, and, sooner or later, you are bound to get one thing or another occurring: either the patient likes you more and more, or he dislikes you. And, as far as one goes, it seems that is sufficient to help us. But this emotional *rapport*, which has always been recognised, is of great suggestive power, because it provides the emotion which is the great auxiliary in the actualising of suggestion, and even if the doctor is preserving silence as much as possible in his consulting room, just letting the patient talk, unconscious suggestion is going on, and it is the more potent the more unconscious it is. And patients who have been analysed by others have said how they felt more and more influenced by the course the analysis was taking. Patients have said afterwards, "Although you say nothing, I am always guessing what you are thinking, and if you say a word I dwell upon it until the next hour arrives, and generally I take a particular word in a particular

sense." That is suggestion in the course of treating by psycho-analysis. You can, without formal suggestion, produce much effect on the subconscious mind, and alter the patient's general outlook.

That brings me to speak of another factor, which I have called autognosis. It is not simply a new word to express an older theory of psycho-analysis; I suggest it simply because I have found it impossible to use the word "psycho-analysis" in my own sense, because psycho-analysis means a certain method and a theory also. Autognosis means neither of them, although it makes use of both where circumstances indicate their appropriateness. It involves analysis, and analytic work makes clearer its value and importance as a psycho-therapeutic factor, because you find that it is an analysis directed to the patient's past life, which enables him to get an insight into his present condition. On the other hand, if you say, "The past is done with; it is the present we have to consider, your aims and your ambitions for the future," he does not get a thorough understanding of his mind, and it is only as you show him what has been that you can get him to understand. If he can see his past and his present in relation to the possibilities for the future, in relation to his hopes and his fears, he acquires more control of his mind and of his intellectual nature, and that is a definite fact in therapy, and worthy of having a definite name. That reminds me of what I said earlier as to the importance of philosophy in psychology. You must have a philosophic outlook if you are going to deal with the minds of men. You must have formed a certain system: you need not be a professed philosopher, but you must have tried to see life steadily and see it whole; you must realise that any extreme philosophy is bad, and that your system of bad philosophy is bound to react upon the patient. The patient's need when he comes to you is the need of a general outlook on life; it is what he comes to you for. He tries to guess what is your own outlook, and it seems to me you should be ready to meet his difficulties as they arise, to discuss things with him. You need not try to convert him to your belief—indeed, you should not do so; but you cannot ignore his religious and philosophic needs; the metaphysical need is there. It is always there, and even in the most extreme materialist amongst us it is present. If there is a creed more general than any other, it is—"I believe in a metaphysic." That was Schopenhauer's creed. We must have a general philosophy, and we shall find we can help our patients philosophically without giving philosophic disquisitions. If we can help a patient to see how certain steps are best solved, by enabling him to take the widest possible outlook on life, and the widest conception of his duties, we shall help him immensely.

(The discussion which followed will be found on pp. 553-6, vol. lxvii, October, 1921.)

Fantasies of Childhood and Adolescence as a Source of Delusions.⁽¹⁾

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THE subject of the relation of recurring dreams of adult life to that almost inseparable mixture of real experience and fantasy which forms the mental life of the child was dealt with by Rudyard Kipling in *The Brushwood Boy*, and by George du Maurier in *Peter Ibbetson*, after a fashion not given to psycho-pathologists. The psycho-analytic school has of late years endeavoured to trace the genesis of the psycho neuroses to aspects of the same period generally considered less attractive. There has, I think, been less effort to establish such a connection in the major psychoses.

We wish to-day to bring to your notice a case of some interest in which the content of a psychosis was pretty obviously in the main a morbid reaction to an earlier fantasy, and the mechanism was unusually clear.

We should like also to describe more briefly a few other cases seen recently, illustrating analogous or different relations of the symptoms to a fantasy dating from, or anyhow concerned with, events of childhood. If time permits we should like to make a few general remarks on the question of whether there is any causal relation between fantasy and psychosis, and, if so, what it is; secondly, on the question of whether there is need for any special technique in eliciting such memories of either real events or fantasies as are truly relevant to the psychoses; and lastly, whether there is any evidence that such elucidation is beneficial to the patient as well as profitable to the investigator.

The first case which we wish to record was admitted to Long-Grove Mental Hospital on July 10th, 1920, and until the following November was under the care of Dr. J. E. Martin. From November until the date of her death, January 23rd, 1921, she was under Dr. Mapother's observation.

The patient, who will be referred to, when necessity arises later, as Mary, was a domestic servant, æt. 21. The history was that until May 27th she had been perfectly well, both physically and mentally, had then been taken suddenly ill with acute abdominal pain, and two days later admitted to the Middlesex Hospital as a case of possible appendicitis, but not operated on.

On admission blood and casts were found in the urine, and she was transferred to the medical wards as a case of acute nephritis. The

(1) A paper read by Dr. Mapother at the Annual Meeting, July 13th, 1921.

condition of the urine cleared up in a couple of days, but the abdomen remained much distended. The Widal reaction was negative; no definite localised pain or swelling was present, but fever, occasional vomiting and persistent general distension continued for four weeks. The diagnosis finally reached seems to have been diffuse plastic peritonitis, probably due to leaking gastric ulcer or to disease of the appendix or Fallopian tubes.

About a fortnight after she was admitted to the Middlesex Hospital mental symptoms began to develop, for which she was seen by our President, Dr. C. Hubert Bond, and eventually, on his advice transferred to Marylebone Infirmary and thence to Long-Grove.

Our only information as to the form of the initial mental symptoms was that provided later by her elder sister, to whom we shall refer hereafter as Jane. These symptoms were interesting and significant, but we shall hope for some amplification of her account from Dr. Bond.

She was a woman, æt. 21, rather pretty, but childish in respect of appearance, manner, speech, and development of secondary sexual characteristics.

On admission she was in fair general health, and no definite physical abnormalities were present apart from the abdominal condition. As to this acute symptoms had passed off, but there was a fairly well-defined, painless, rounded mass filling the central two-thirds of the abdomen and not moving with respiration. It was smooth, firm, but elastic, and rather suggested a collection of fluid or a cyst fixed to the posterior abdominal wall, but it was resonant all over.

Bimanual examination under an anaesthetic by Dr. Martin revealed firstly that the patient was not a virgin; secondly, that the mass had no extension to or connection with the pelvis; thirdly, that the uterus could be felt separately, a little enlarged and regular, and that the uterine appendages seemed normal.

Three diagnoses were mainly considered by those who saw her: (1) Tuberculous peritonitis; (2) some form of subacute septic peritonitis, as suggested at the Middlesex Hospital, secondary to leaking gastric ulcer, or less probably to disease of the appendix or tubes; (3) pancreatic cyst. The balance of evidence seemed in favour of tuberculous peritonitis, and the *post-mortem* proved this to be the correct diagnosis.

In the course of the case the progress of the mental and bodily symptoms was closely parallel. In respect of both the first phase at Long-Grove lasted until about the beginning of November, 1921. Before passing to the mental symptoms we may state briefly that during this period she appeared to be going steadily downhill physically. Though the abdominal tumour remained practically unchanged, and though there was no fever and no signs of disease could be detected

elsewhere, she steadily lost weight, largely, as it seemed, on account of persistent vomiting. The vomit was coloured brilliant green with bile.

Turning now to the mental symptoms, the striking features during this first phase were the patient's loss of contact with reality, and the apparent lack of meaning and connection in such signs of mental activity as she showed. An early note puts the matter concisely by saying that her condition daily becomes more suggestive of dementia praecox. In her customary state she was mute and inert, gazing vacantly into space and dribbling saliva. Her attention could only momentarily be attracted to either a question or an order. She admitted hearing voices and seeing a face which stared at her and vanished. She displayed no interest in her surroundings beyond occasionally looking round in a perplexed fashion. She was wet and dirty, micturated during examination, and when this was pointed out merely remarked "Elephants."

This prevailing state of stupor was interrupted at short intervals by manifestations of three other kinds. Firstly, the performance of isolated impulsive acts and the making of disjointed remarks. She is described as adopting fixed attitudes and making studied movements and gestures. Her few spontaneous questions were apparently meaningless. She asked: "Is my head full of shells?" and again, "Why wasn't I spanked at school?" Secondly, there were outbursts of weeping, for which the reason could not be elicited, coupled at times with evident apprehension. Thirdly, there were phases of joyous and defiant excitement, in which she snatched crockery from the nurses and hurled it at them, poured forth a stream of obscene chatter or sang smutty limericks at the top of her voice.

This mental state—presenting as a whole an unmistakable resemblance to dementia praecox—persisted with little change until the beginning of November, 1920, when she began to improve, both mentally and physically.

Before going further, however, it will be well to state the facts that had so far been elicited in regard to history from the patient's elder sister, Jane.

Jane stated that her sister Mary had been in perfect bodily health within a few days of admission to the Middlesex Hospital and normal mentally for a fortnight after that. She had for about two years been "keeping company" with a certain young man, A. D.—, and from certain remarks Jane had adduced, rightly or wrongly, that intercourse was occurring. About a week before the onset of the illness Mary had appeared depressed, and on questioning had replied that she supposed that now she would never get married. At the time Jane had supposed she was referring to the fact that the young man had recently fallen out of work, and had thought there was some question of breaking it off on this account. The sudden onset of abdominal symptoms made the

sister suspect that Mary had found herself pregnant and had taken something to terminate it. She taxed the young man, but he absolutely denied intercourse to her, as he did later to Dr. Martin.

The early mental symptoms, as reported by Jane, were very highly suggestive of symbolically disguised self-reproach. Mary talked of the awful smell emanating from her body, warned her sister against allowing Jane's baby to sit on the patient's bed, as she would taint or infect it; and on seeing two policemen bring an accident case into the ward screamed out not to let them take her away as she had done nothing wrong.

By Dr. MAPOTHER.

Now returning to the facts as observed at Long-Grove, about the beginning of November, 1920, the patient began to take a definite turn for the better. Though the abdominal mass remained unchanged till her death, vomiting ceased and she began to steadily put on weight. By the beginning of January she was sitting up in the open air all day. Simultaneously a gradual mental improvement was occurring. The earlier condition of detachment from reality vanished. She became alert and cheerful, tractable and grateful for any little attention, interested in her personal appearance, and quite accessible to questions about passing events and communicative in reply. She ceased making disjointed remarks and performing unintelligible actions, but still occasionally milder examples of the other three-fold abnormality of reaction would occur spontaneously. She would have a little outburst of crying for no apparent reason, which could be stopped by distracting her like a child, or she would sing comic songs rather boisterously for an hour or more. Rarely she would pass into a dream state.

But the noteworthy fact was that with unfailing certainty one of the three same modes of reaction could be evolved by any question as to events leading up to her admission to the Middlesex Hospital. To avoid suggestion no leading questions were ever asked, but any reference to that period promptly provoked one of three phases analogous to those occurring spontaneously—either a flood of silent tears, or a state in which she became entirely abstracted, glassy-eyed, and temporarily like a case of catatonic stupor, or an outburst of incoherent disjointed babble mainly about her days as a munition girl and full of references to a girl-friend of the period. This babble was delivered in a curious unmodulated monotone with a sort of syllabic utterance and total absence of expression. It was obviously what is called "*Vorbeireden*." It could not be stemmed, and would go on as long as any attempt was made to investigate the past.

It required, therefore, no flight of fancy or gift of prophecy to guess

that underlying these manifestations, making as a whole a picture so typical of dementia praecox, was some cause of remorse, and that the phases represented respectively the direct reaction by grief, the attempt to forget by withdrawal from reality, *i.e.*, morbid introversion, the attempt to forget by hyperactivity, coupled with obscenity and defiance as the converse of the real shame present, and lastly, that of the earlier disjointed actions and remarks, some at least would prove to be symbolic expressions of the same feelings coupled to associated ideas—in fact, thinking in metaphor without recognising it as such.

This proved to be the case. She was immensely pleased with herself and with me because I gave her permission to go and look on at the Fancy Dress Ball on January 14th, 1921.

On the following morning I was examining her abdomen, and I said, "Now I want you to tell me about the time you went to the Middlesex Hospital." Instead of one of the usual reactions she said suddenly, "I want to confide in you." She then went on to make a lengthy statement. It was couched in a vernacular so unrefined as to be quite unsuitable for reproduction to this audience, and interrupted by outbursts of weeping and exclamations that she was bitterly ashamed of herself and wished she were dead. But it was otherwise continued, spontaneous and unprompted by questions. She stated that between the ages of 11 and 14 she had had habitual sexual intercourse with one of her own brothers: that she was then discovered in the act by her mother, who beat her, and afterwards sent her to an industrial home. She declared that there she found, as she put it, "that she could not do without it," and masturbated regularly, taught to do so by the "bad girls" there. She said that during the period of incest she had been terrified of pregnancy.

She stated that she had never menstruated. This apparently did not worry her at all until 1916 her brother was killed. She was then just eighteen, and in domestic service. She had remained greatly attached to him. Her grief was intense, and memories of her former relations with him revived. She had a period in which she felt muddled, began again to fear she might be pregnant, got very worried about her amenorrhoea, and went to her mistress. Her mistress gave her gin, which is, of course, a popular panacea for all disorders of menstruation. I could not ascertain what effect it had, but apparently she ceased to worry. She told me that soon after she left this situation, and a little later became a munition worker, and fell in with more "bad girls." She would not particularise about this period, but from it dated her knowledge of the pornography she used to sing.

After the war she returned to domestic service. She denied with fervour sexual connection later than the period of incest. For the past two years she had been "keeping company" with A. D.—. Questioned

about relations with him, she murmured about an incident in the park, but absolutely denied intercourse.

Lately she said she had fallen in love with A. D.—'s brother. He, however, seems to have had higher social aspirations and rebuffed her. She said it was on the grounds that she was a mere domestic servant, but she felt herself that she was disqualified for marriage with anyone, and especially with him. The shame and grief of this period had again rendered very prominent memories of former incest. At this time she noted that her abdomen was beginning to swell. Ideas of pregnancy recurred, and she started to worry about her amenorrhœa. Prompted by memories of the gin given her on a former occasion, she took large quantities of methylated spirits and also of some other medicine in the hope of ending either the imaginary pregnancy or her life, not much caring which. This accounted for the sudden onset of the abdominal pain, and probably for the transitory haematuria present on admission to the Middlesex Hospital.

Four days later I had a second long interview with her. At this she fully confirmed the story noted above. Suddenly she branched off in the monotone described before into what was an obvious fantasy. She said that her supposed mother was not so at all, that she did not know who her real parent was, that she was a foundling, and that her supposed mother—a cruel foster-parent—hated her, and had sent her when a baby to a brothel. It was there she said that she acquired that knowledge of wickedness that had ruined her life. At the end of this statement she said in the same tone, "I think that is all for to-day," and could not be induced to say another word.

During the interval between these two interviews and after the second the patient seemed much as before—cheerful, alert and interested in the occupations and amusements of the ward.

Suddenly on the evening of January 22nd she had the wildest outburst of excitement that had ever occurred, shouting loudly, and singing her obscene limericks, defying and threatening the staff. She had to be moved to a single room, and there became quiet, but when roused next morning appeared ill. A little later she became collapsed, and she died in half an hour.

The *post-mortem* examination showed all the intestines were densely matted together, and that the parietal peritoneum of the anterior abdominal wall was so closely adherent to them that it was very difficult to dissect off. Scattered over both parietal and visceral peritoneum were innumerable grey tubercles, but no caseous masses were present. The substance of both ovaries, however, was largely replaced by caseous material, the replacement being almost complete in the case of the left.

The rest of the organs were healthy with the exception of the lungs, which showed a few scattered grey tubercles throughout and a little

disease of older standing at each apex. It was insufficient to have produced any obvious physical signs. There was no adequate explanation of the suddenness of death after improvement, which could only be ascribed to exhaustion from the attack of excitement.

So far the case had appeared to me one of a typical Freudian type, and I had accepted the central factor of incest as a real happening, in spite of the warning conveyed in the obviously fantastic nature of the story regarding the brothel and the foster-parent.

The supplementary history from the elder sister Jane, however, placed the matter in a fresh light, and enforced the moral of the need for that corroboration of the neurotic's statements from outside sources which is so conspicuously absent in many accounts of cases. This history, though leaving the psychosis as a reaction to the idea of incest, reduced that idea to an ordinary fantasy of adolescence of the kind commonly associated with masturbation. The brother was probably selected as partner therein for the simple but sufficient reason that he was about the only man with whom the child was familiar when the sexual craving underwent its usual increase at puberty.

For the proof of this view and for the understanding of the case from other aspects, it is necessary to recount the family history at some little length. The parents were married in 1888, the mother being then 17. There were altogether thirteen children, Jane, the eldest, being ten years older than the patient, while the brother Alfred, who figures in the story, was nearly eight years older.

The mother for a short time after marriage was a decent hard-working woman, but she became negligent, slovenly, and a chronic drinker; in consequence, all the younger children were practically brought up by Jane. The mother had her first definite mental breakdown when Mary was born. This and another were treated in the infirmary, but in September, 1902, when Mary was æt. 4, the mother was sent to Horton Mental Hospital. She was discharged in June, 1902. Ten months later the last child now living was born, and during the following years a series of others, which died as infants. After leaving Horton the mother was better for a time, then became again neglectful and drunken.

Jane, who had brought up and protected the younger children, had married in 1908, and had her first child just at the same time as the mother had her last. With Jane gone, the treatment of the younger children became so scandalous that the mother was prosecuted at the instance of the National Society for the Prevention of Cruelty to Children, and got six months in Holloway.

This imprisonment of the mother led to the break-up of the family home, and it was this that caused the admission of Mary and her little sister to the Industrial Home. Obviously discovery of incest had nothing to do with it. Mary was only æt. 12, not æt. 14 as she stated;

the brother was devoted to Mary and she to him, but he was nearly 20 at the time and engaged to be married. He joined the Army, and hardly saw Mary afterwards, thereby no doubt consolidating his position as her ideal. Jane, who practically mothered the younger children, and who discussed the whole matter calmly and sensibly with me, had never heard a word of the incest story before, and was certain she would have known if there had been any truth in it.

Returning from Holloway the mother lived apart from her husband, until in July, 1913, she was admitted to Colney Hatch, and there she remained five years. Her condition on admission was a superimposed alcoholic, delusional and hallucinatory one. With the passing off of this there was revealed a more permanent state of chronic melancholia. She is described as depressed and sullen, irritable, quarrelsome, and obscene. This was essentially the state also noted at Horton, and was that which in the years between had made their home a hell to the younger children, and which adequately accounted for the fantasy of the cruel foster-mother. It is an interesting coincidence that an early note at Colney Hatch on the mother's case says, "She states that she has seen nothing for four months, and is evasive, and becomes confused when questioned about her chance of pregnancy." I may say that after five years the mother appears to have made rapid improvement, and was discharged recovered in May, 1918. She has since kept very well, and is now employed as a housekeeper.⁽²⁾

The only other point about the case that needs recording is that the sister confirmed, as far as could be expected, the fact of Mary's first breakdown on receipt of the news of her brother's death. This death occurred in February, 1916. Mary suspected it from the fact that her letters to him were unanswered, but the confirmation of her suspicions came quite suddenly. She was prostrated for a time, and then confused and depressed.

The case illustrates a number of points of considerable interest. The first of these is the wealth of meaning which, without any far-fetched interpretations or assumptions, lay behind the apparently disconnected symptoms of a case of early dementia praecox. It is the rule, not the exception, that the meaning of such behaviour can be elicited during the lucid intervals which are customary in early dementia praecox. It is certain that such behaviour, though unrelated to the environment, is neither meaningless, nor the reproduction of disjointed fragments of past experience, but closely related to a highly-organised system of ideas which the patient can be got to expound when accessible. The actions and words may appear as disconnected as those of a somnambulist, but behind them lies something much more coherent and closely woven than a dream. It is only later that these actions and words

become habitual and meaningless, even to the patient. To employ a much-abused word there is a "complex," but not an unconscious one.

Another point of interest is the co-operation of numerous factors, both physical and mental, in the production of the psychosis. It is, of course, the rule in practically all properly investigated cases of insanity to find that it is the result of the summation of multiple causes, effective in combination, though inadequate singly. It is this that renders all controversy between extremists of the physiogenic and psychogenic schools so futile. Our standpoint is, that one must distinguish between the form or content of the psychosis and its occurrence. The mode of thought constituting a psychosis is a parody of the normal. The occurrence of the psychosis, *i.e.*, the fact of more or less sudden adoption of distorted modes of representation, is not in the least explained by the demonstration of what is being caricatured or what methods of distortion are adopted. This is so obviously a truism that it would be necessary to apologise for it if it were not habitually ignored. The material which is elaborated in the psychosis is necessarily previous mental experiences, but we think the occurrence of a psychosis is in the great majority of cases due to intervention of something quite other than a mental experience. In fact, even in so-called functional psychoses, the relation of mental symptoms and physical basis is probably as a rule that seen in febrile delirium or general paralysis.

Occasionally the physiological apparatus of emotion may, by recent mental impressions of excessive intensity or duration, be given a set or direction which amounts to the occurrence of a psychosis.

But remote events cannot be regarded as specific causes, or as contributing more to the occurrence of a psychosis than a general modification of the emotional apparatus.

In practice it is extremely difficult to distinguish the mode of action of a single factor, whether it acts physically or mentally, and probably the truth is generally both, *e.g.*, in the case in question the insane mother may have contributed to the instability of the daughter by endowing her with an unstable nervous system, or by determining for the child's emotional apparatus a certain development, due to misery.

The disease of the ovaries probably determined that amenorrhœa which twice was one of the main factors suggesting pregnancy. It very probably also contributed by retarding full sexual development and the mental evolution which normally accompanies it. It may thus have protracted that tendency to fantasy and that difficulty in the distinction of it from reality which is equally characteristic of the child and the neurotic—which, in fact, constitutes the lasting disposition of the neurotic to fixation and regression.

The tubercular peritonitis, in view of the parallelism between its progress and the mental state, probably contributed in a purely physical

way to the onset of the disease, as well as by suggesting pregnancy through causing abdominal swelling and discomfort.

Some recent mental impressions certainly played a part in the precipitation of the psychosis as well as the determination of its form, notably the revival of her feeling for A. D.—'s brother, and possibly recent incompatible relations with A. D.—himself.

But whatever the influence of these recent mental events, we decline to ascribe any serious causal importance to the incestuous fantasies of years before. Though they were the central point of the content, their significance was in our view entirely a consequence, not a cause of the psychosis. In fact if the title of this paper draws attention to the occasional prominence of such fantasies, it is in order to emphasise that the significance of these and equally of remote real events in the psychoses is as a rule entirely secondary.

Confining one's attention to the special group of the sexual activities and fantasies of adolescence one may, we think, say that masturbation at puberty is absolutely natural and instinctive. One must then forestall criticism at once by saying that this remark implies no approval. Every moral code, right or wrong, consists in the prohibition of natural instinctive acts. What is meant is that the tendency thereto is simply analogous to the play of a kitten chasing moving objects as a preliminary to hunting for a living.

Fantasy is a mental substitute for such preparatory activities. The vividness of the sexual fantasies of this period is a fact well known to criminal lawyers, and of great practical importance in connection with charges of intercourse under the age of consent.

The sexual fantasies of adolescence are as natural as the ambitious ones generally coupled with them, for the reason that puberty is the natural time for breaking the family tie and commencing independent self-support. Civilised man is not yet adapted to the post-dating of both sexuality and independence.

The ban on masturbation enforced by the herd instinct is probably a few hundred generations old, and man had probably been developing the typically human instincts for some thousands of generations before this ban was introduced.

It is not surprising therefore if in most individuals at puberty the herd instinct fails of complete dominance at times. If occasional actual masturbation is not universal at puberty it is I think pretty certain that sexual fantasies are universal.

Now with the same protest that we are not expressing approval, it seems very natural that the sexual tendencies of puberty should often be incestuous. There seems little need to regard this tendency as specific, or to dignify it with special names. The adolescent takes as the material for fantasy production that which is available; frequently,

as in this case, the only familiar figures of the opposite sex are members of the family.

The taboo on incest also is probably a novelty in the race, having no obvious survival value and needing reimposition in each generation, so that the dictate of the herd in this matter needs careful reinforcement to be effective. I remember listening to Mr. Trotter some years before the publication of the first papers which were afterwards embodied in his book on the herd instinct, and that when questioned as to the efficacy of the herd instinct against natural impulses, he pointed to the abolition of incest as the greatest example of what it could achieve.

I agree with the reservation that the triumph of the herd instinct is not seldom incomplete in fact. In fancy this triumph is so often incomplete that it is absurd to call incestuous fancies a cause of psychoses. Many histories of such facts and fancies can be obtained from neurotics and from the insane without special methods or difficulty. I have seen several during the past year who poured out such stories spontaneously, but I know of no proof that the history would be more common in the insane than in the sane. Housed as they are, you cannot expect all the children of the poor to have the minds and manners of young ladies and gentlemen. We venture to think that if juvenile incest were a common cause of psychosis, the mental hospitals would require considerable enlargement, and that if incestuous fancies were effective there might be some difficulty in finding the necessary staff.

Our own feeling about the relationship of remote real events and fantasies to the psychoses is therefore this: That to say the fantasy is causal is to put the cart before the horse; that the psychosis consists in the establishment of a certain set of the emotional mechanism by physical or by recent mental events; that the significance to fantasy is secondary and due to harmony with that morbid mood, and that various other symptoms are tertiary reactions to the prominence of the fantasy.

It is of importance, as seen in this case, that fantasy is as effective as remote real experience—either active or passive—in provoking the reactions constituting the psychosis because this reduces such real but remote experience to its proper place. The prototype of this sort of thing is the dementia praecox making eternal hand-washing movements on account of the practically normal act of youthful masturbation. The abnormality lies not in the action but in the reaction.

Rather less commonly, the earlier actions of the patient are expressions of the same tendency that, exaggerated later, constitute the psychosis. It may well be that the special vividness of the neurotic's fantasies is an earlier expression of his capacity for hallucinations.

This question of the primacy of the psychosis or of remote events and fantasies is the central problem of the treatment of insanity to-day. The time is past for crying that Freud's findings as to the contents of

the neuroses and psychoses are horrid or "made in Germany," and for substituting witticism for criticism. [For my own part, without claiming the title of psycho-analyst or using any special methods and avoiding suggestion to the best of my ability, I find that in 90 *per cent.* of cases where the patient is accessible the content of the psychosis is a reaction to events of sexual life in the narrowest sense of the words, and generally to the memory of offences against the code. I only put this forward as representing my recent experience, limited mostly to women of the lower classes.—E.M.] But even some of us who are not afflicted with excessive prudery or patriotism are disposed to dispute the causal importance of remote mental events and the necessity and efficacy of eliciting them. The whole question of treatment turns thereon. If the relation be such as we have suggested, it undoubtedly is still of immense interest to trace the connection of every feature of a psychosis with the previous life, but that interest is academic.

The hope of practical benefit depends on attention to the bodily state and to the difficulties of the present, and is limited by the extent to which these can be adjusted. This is, of course, the view on which is based the practice of the majority of psychiatrists. If the views of the psycho-analytic school are accepted this is obviously for ever futile in the majority of cases. Jung, at any rate in his middle period, would seem to have definitely adopted the all-importance of the present, but he coupled this with a treatment by revival of remote memories and fantasies. This is alleged to be necessary for the purpose of detaching libido from fantasy and liberating it for use in external activity. This appears to be an elaborate form of begging the question whether that which is the essence of dementia *præcox* can be cured in such fashion.

The events of the distant past, more or less distorted, often constitute the content of that peculiar form of thought we call a dream. They did not cause the sleep on that night when the dream occurs, nor will the establishment of connection between the content of the dream and the past cure the tendency to sleep in the future and to think in the fashion called dreaming. Similarly, we think the events recurring in dementia *præcox* do not cause it, and their elucidation will not cure the standing loss of touch with reality which is the essence of the disease.

Lastly, we remain unconvinced as to the necessity, anyhow in the psychoses of the special technique, which really constitutes psycho-analysis, *viz.*, free association and analysis of dreams. It is an important point, as psycho-analysis in orthodox form is permanently impracticable in institutions.

Personally we find it quite easy to elicit in cases of psychosis by ordinary conversation with occasional questions the sort of story which the psycho-analysts have led us to expect. A little intelligence and

imagination as to the probable meaning of symbolic symptoms is required, and of course we owe to Freud almost the conception that symptoms commonly are symbolic.

But the real point is that cases where the main symptoms are symbolic of remote mental states which genuinely cannot be recalled are pathological curiosities.

In many cases the connection between the symbolic reactions and the complex is not obvious to the patient, but the complex itself is practically always in the foreconscious, as Freud would say. The formidable structure of the psycho-analytic theory is based historically on the opposite view as to this point. There are other arguments for and against the existence of the unconscious, but this one seems to us to be in conflict with clinical experience of the psychoses.

Granted that a patient is accessible at all, our experience is that extraction of what is relevant is not limited by amnesia but by reluctance. Many are bursting with anxiety for confession, but others are inhibited by shame and doubt as to the reception of their confidence. If this can be allayed no special technique is required. Our feeling is that the main value of psycho-analytic technique consists in this: that it enables the neurotic instructed in regard to "the unconscious" to save his face by deceiving himself that what is thus elicited is something foreign to his true self.

By Dr. MAPOTHER.

Referring to our special topic of fantasies of youth as the source of delusions, cases are common where a mere detail of the clinical picture is a derivative of childhood, e.g., the identification of the self or others with figures out of remembered fairy stories. Omitting consideration of these, the case described above combines the two types of fantasy which have seemed to us to reappear most commonly in subsequent delusions, viz., those of early childhood about the parents and those of adolescence in regard to sexuality.

Some at least of the delusions of royal birth seem to be revivals of ideal parents created for themselves by those whose childhood is unhappy.

Of this type is the case of a patient, E. H.—, an intelligent and well-educated woman, æt. 55. About three years ago it became clear to her that she was a personage of great importance, and gradually it has been revealed that she is the Princess Victoria, and that she and the Duke of Clarence were the children of Edward VII by his legal marriage with an elder sister of Queen Alexandra. She says that Edward VII then put aside this queen and replaced her by Queen Alexandra, who was her indistinguishable younger sister.

The patient declares that as the legitimate queen she is persecuted by the rest of the Royal Family.

The real facts have been ascertained from a friend who knew the family by whom the patient was brought up. These facts are that she was taken from an orphanage when a child of about five to be a companion to another little girl of the same age. The latter was the only child of well-off parents, but probably defective, and later became definitely insane. The father was kind to the patient during his life, but the mother treated her with the greatest harshness, discriminating always in favour of her own child and rubbing in how dependent she was on their charity for the food she ate. Eventually she was given a training as a Norland nurse and with this turned out to make her living, which by a hard struggle she has done until she broke down recently.

The patient claims to be able to remember her splendid real mother before adoption, and even the visits of Edward VII coming to see her mother just after the parting.

But she also says that she was warned never to go near a public-house for fear of meeting her dissolute father. She says triumphantly, "You know what a bad man Edward VII was," and regards this as a fairly conclusive piece of evidence of her parentage.

I think this identification of "bad men" with the sort who frequent public-houses stamps the fantasy as probably really originating in childhood. It will remind those who know Kipling's story of the sinister figure of Policeman Day, the principal enemy of the Brushwood Boy and descended from the policeman, to whom the nursemaid had threatened to deliver the hero at the age of three.

A case illustrating the sexual fantasies of adolescence is that of a typical dementia praecox, æt. 20 on admission. She was then intensely agitated and full of self-reproaches. Her principal remorse was in regard to having, at the age of 13, entertained a fantasy of intercourse with God, associated with masturbation. There is some reason to suspect a tendency to identify God and her father. She accused herself also of having killed God and her father, and described the battle of Armageddon, in which she commanded the forces of Evil.

This case differs from the first in that the remorse on admission was in respect of what was recognised as a fantasy. But already since admission a growing tendency can be observed to give to this incident the quality of reality.

I may say that the same patient gives a history of intercourse at the age of 9 with her own brother and other small boys with a wealth of detail which makes it very strongly suggestive of reality.

Two further cases I would mention, rather by way of contrast.

In the first it is *current*, not *re-current*, fantasies which provide the material for the delusions of a psychosis originating about puberty.

The patient is a dull, dreamy girl, æt. 16, but seeming younger in all ways. She is obviously in the early stages of dementia præcox, and her parents are typical degenerates. She was employed as a housemaid at the college attached to one of the London hospitals, working in the students' quarters.

She fixed her affection on one of the students, and in her enthusiasm used to call him hours before it was time for him to get up. She declared the matron had said she was to be married to him, and since the day after her transfer to the infirmary has believed she had a baby on the night of admission, because "she heard the other patients say so."

This is, of course, only a simple example of the wish fantasies of adolescence being accepted as fulfilled in reality owing to impairment of the capacity for discrimination by dementia præcox. Perhaps the most interesting fact about the case is that the girl is absolutely and entirely ignorant of the nature of sexual relations, gestation and parturition.

The last case is given as a type contrasting with the earlier ones, in that the fantasy, though concerning the events of childhood, is created in the present and referred back to the past—in fact it is merely pseudo-reminiscence.

The patient is a constitutional neurotic now æt. 39. She left home about the age of 18 and has tried to earn her living since as a nurse, but has always been inefficient, unduly dependent, and incapable of life apart from her family. She has had one previous definite mental breakdown. The content of her last psychosis seems, however, to have been pretty clearly determined in large part by a story read to her when in a condition of confusion and depression at the onset of the attack. The central figure of the story was, like herself, the daughter of a clergyman brought up in a country rectory. In the story the clergyman was unable to do anything with the child or to win its affection.

It is impossible to go into adequate detail. It can merely be said that she identified herself with the child in the story, introjected various incidents of it into her own past, and gave to various incidents—possibly truly recalled—an absurd significance in keeping with two central ideas. The first was that her father had warned her that she was inevitably damned on account of caring insufficiently for her parents. The second that her father had advised suicide. The evidence of the second belief which she adduced was a recollection of his saying to her, at the age of four, "Go home, baby."

A persistent suicidal tendency which she displayed during the early part of her psychosis she herself refers to this imaginary injunction.

She has recently greatly improved and become aware of the origin of these ideas.

We are fully conscious of the imperfections of this paper, which is designed chiefly to elicit the experience and the views of others. The description of cases has necessarily been somewhat summary and the statement of theoretical views rather dogmatic in form. As to the latter, we put them forward tentatively as impressions which we hope we are ready to modify in the light of further experience.

(The discussion which followed will be found on p. 534, vol. lxvii, 1921.)

(2) We have to acknowledge the kindness of Dr. Gilfillan, Medical Superintendent of Colney Hatch, and Dr. Lord, Medical Superintendent of Horton, in providing us with information as to the condition of our patient's mother during the periods she spent at their respective hospitals.

Change of Phase in the Psychoses.⁽¹⁾ By THOMAS BEATON, O.B.E., M.D., M.R.C.P.Lond., Senior Assistant Physician, Bethlem Royal Hospital.

CHANGE of phase is a well-recognised feature in the course of certain of the psychoses. In manic-depressive insanity it is on the phasic variation of the affective state that the separation of that type of mental disorder is based. So, also, in many cases of the chronic psychoses phase changes occur as the disorder progresses, and as the patient fits in new experience and builds up fresh mental content on the basis of the already existing delusional state.

Such changes, however, are to be regarded as part and parcel of the particular psychosis concerned. Apart from the interest of watching the gradually expanding self-regard of the paranoiac, or the gradually increasing inhibitory control of the maniac who is becoming quiescent, such changes have no value, and they bear no practical significance as regards the future of the case. The patient is still the subject of manic-depressive insanity whether he be exalted or depressed, and the paraphrenic battling with his difficulties as plain Mr. Smith, or reacting dominantly, as his condition advances, as Lord Smith of Smithshire, remains fundamentally a paraphrenic of whose mental future there is little doubt.

In this paper it is not proposed to consider such changes as those indicated above, but it is desired to draw attention to the occurrence of certain variations of phase which frequently may be observed in early psychotic derangements. These changes are fraught with the highest import to the subject, for not only do they often result in a totally changed attitude to the hospital environment, but not uncommonly they lead to a re-adjustment to social life.

The text-books on mental disorder, as is indeed necessary, are

⁽¹⁾ A paper read at the Annual Meeting held in London, July 14th, 1921.

concerned with the exposition of more or less definite and distinct disease types, the underlying psycho-pathology of defined disorders being explained, and the evolution of the finished specimen followed step by step, from the initial departure from sanity up to the onset of the secondary dementia. On this basis, therefore, it should be possible in observing the early case to place the type of disorder with a fair degree of accuracy, and so to establish a fairly certain prognosis, but experience of the early case in clinical practice goes to show that this highly desirable state of affairs is far from attainable as yet. Personally, I have found that those physicians with the widest experience are those who are the most reluctant in coming to a diagnosis in any particular case. I consider that it is a striking testimony to the frequency of occurrence of these little-considered early-phase variations, as well as a distinct reflection on the position of clinical psychiatry as a branch of scientific medicine, that it is usually necessary to keep a case under observation for a period in many cases of from at least six to more than twelve months, before the conformation to type becomes sufficiently close to permit of a reasonable possibility of prognosis.

Bearing in mind this general experience, one is forced to the conclusion that the general types of chronic insanity which have been separated out are really to be regarded purely as secondary manifestations, and that whether the origins of the psychoses are to be found in individual incidents of psychic life, as is the teaching of the analytic school, or whether they rest in the more fundamental processes underlying the absorption of experience and the building up of the personality; such is the homogeneity of the human species that, in spite of the diversities of experience and of individual make-up, ultimately the final settled adjustments may be counted up on the fingers of one hand.

However, to return to the actual subject-matter of this paper: it would be impossible to deal adequately with the full range of the early phase changes within the limits of the time permitted, therefore I propose considering only that phase which is productive of the most marked effects on the mental condition of the patient, and, in my experience, the most striking changes are to be anticipated following the exhibition of a confusional phase.

It may be objected that in considering confusion one passes from the psychoses proper to quite another group of disorders, and that the fact of recovery following confusion is only in accord with the recognised course of events, in that confusional states of mind do tend to recovery. With this objection it is quite possible to agree, and, indeed, I wish to emphasise the fact that recovery is common in these states, as I feel that the significance of this has been largely overlooked in the general distraction of attention by the modern trend of psychological thought. In support, however, of the inclusion of a confusional phase in the

course of a true psychosis, it is contended that it is at least as possible for a psychotic as for a rational individual to develop an exhaustion state, or, in view of the self-neglect so common in the psychotic patient, a toxic confusional state.

Now, in considering a case of early psychotic derangement, it is clear that, whatever be the cause, the subject is being confronted with a set of novel experiences which are very different from, and may be directly opposed to, any experience which had been undergone previously in the individual life. To the patient these experiences are, of course, perfectly real, and, from their very novelty and their personal application, they become the dominant factor in determining the direction of flow of the interest or attention. To them the patient attends, "willy nilly" he must think about them, he must reason them out. By the rationalisation which occurs the new experiences are built up into an organisation of new sentiments, and, owing to the strength of the affect all that conflicts with them must go by the board. So retrospection undermines what is left of the previous experience, and new perceptual experience is accumulated as the days go by under the influence of the prevailing affect, all to the effect of strengthening the delusional state and of removing the patient still further from the possibility of proper social adjustment.

The greater the intellectual capacity, the wider the sphere of knowledge ; the longer the new organisation is in existence, the more extensive will be the systematisation. For instance, the paraphrenic differs from the paranoiac in other ways than in mere mental content, the latter individual being invariably of a much higher intellectual capacity ; also the chronically insane subject gradually changes his sentiments towards objects which previously had a high interest value, visits from relatives being received apathetically even if the patient has not earlier rationalised a hostility to all his friends, on the grounds that they do not come forward to help him substantiate his delusional ideas.

Meanwhile the patient is quite unamenable to any influence save that of force, he can be cajoled into behaving properly, and he can be persuaded into conforming to the rules of the hospital up to a point, but his new outlook on life, his new sentiments cannot be altered by the slightest fraction ; such intellectual ability as he has is used to counter any attempt to argue him out of his beliefs, and the only effect of such an attempt is that the patient is stimulated to forge still more firmly those intellectual bonds which hold his delusional state together. It is highly probable in many cases, also, that the original cause which set off the whole affair subsides and is no longer operative, but the organisation of delusional experience has by this time become so firmly fixed into the personality that the condition is self-perpetuating, and consequently unalterable.

So long, therefore, as the capacity for intelligent thought remains active, so long must the compound of delusional sentiments grow and cohere, until finally the element of novelty wears off, the patient ceases to think about his experiences, he takes them for granted and settles down to his new adjustment, which takes the form of one of the recognised types of the psychoses. This is the reason why it is found that many of the chronic patients in our county hospitals are quite capable of useful work under the hospital environment.

If, however, the patient develops a confusion for any reason, a very different course of events must follow. In the first place the continued addition of strengthening perceptory experience must cease because the processes underlying intelligent association are no longer operative. Secondly, the organisation of the new experience is badly strained, its intensity and clarity are markedly reduced in proportion to that of previous experience, according to the rule that the latest acquirement is the first to be lost. Finally, influence can now be brought to bear on the patient, who, owing to his difficulty of intelligent thought, cannot meet argument with argument and is therefore more capable of taking a suggestion. His perceptual experience is more likely to be dominated by the original compound of sentiments developed prior to his psychosis, and in consequence he is more amenable and easier to handle.

Compare, for example, two cases of what may be termed melancholia of the involutional period. The first was admitted to hospital with the usual ideas of depression, of financial difficulties (which were real enough), and with the conviction that he could no longer keep up the struggle of making ends meet. His delusional state developed, he was hopelessly lost, he was to be killed, his wife and family were to be murdered, etc. He was passively resistive to treatment but never developed any signs of extreme anxiety, and he has settled down to his position in hospital, smokes his pipe, reads the paper, but turns a deaf ear to any talk directed to showing the falsity of his beliefs. The second was admitted in a very similar mental state, with ideas of financial ruin and that he also was hopelessly lost. He, however, showed a more active resistance, it was difficult to ensure his proper nourishment, his expenditure of energy was much higher, and, within three months of admission he developed a confusional state which I regarded as an exhaustion. With careful attention it was possible to restore his physical strength, the confusion gradually cleared and he began to rationalise again. This time, however, he no longer built up on the basis of the former delusional ideas, he adopted the attitude that he was being kept, that he would never be allowed to go out again, that, far from being lost by virtue of his own condition, he was only being held back by the authorities of the institution. This attitude, though

appearing to be delusional, was not an unreasonable one under the circumstances. Later on, when he was well enough, he was sent out to show him that it was not intended to keep him indefinitely, and with the removal of his doubts on that point he quickly reached a truly rational view of the whole question of his illness.

It is not always that the interception of a confusional phase results in readjustment to social life, as the following case shows: A very intelligent and well-educated woman, æt. 37, by profession a nurse, was admitted in a highly emotional depressed condition, the prominent affect being that of remorse. She had neglected her patients, she had fallen short of her religious ideals. She was quite inaccessible to argument, and she rapidly developed her delusional state. Finally she became convinced that she was to die, and she would fix the time at which "God would take her." This having arrived, she would go through the semblance of a death scene. As was to be expected she exhausted herself with the tremendous amount of emotional agitation she experienced, and in addition she contracted a rather acute colitis, the combination of circumstances resulting in an acute confusional breakdown. For a time her life was despaired of, but eventually the colitis was got under control and her strength began to return. Her attitude had changed completely when she again commenced to rationalise her position; instead of upbraiding herself she turned on her doctor and demanded to know what had been done to her, why she was made ill, why did she not receive any treatment, etc. Unfortunately it has not been possible to break through her hostility, but evidently her perceptive experience derived during the first phase of her malady has been quite obliterated.

A case which is of interest as showing the attempt at readjustment following a confusional state is that of a woman, æt. 34, who was admitted to hospital in a state of confusion with excitement. She had vivid hallucinations of a terrifying nature, and her general effect was that of intense apprehension and fear. She became thoroughly exhausted and stuporose, but more amenable to treatment, until after about three weeks she began to take some notice of her surroundings. Attempts were made to explain her situation to her, for of course she had no idea of where she was or of how she came to be there. Her first endeavour at putting things together resulted in the idea that she had committed some crime, that she had disgraced herself, that her people would not have her at home, and she begged to be killed to put a stop to her disgraceful life. This state of mind was naturally accompanied by much agitation, and after a few days of incessant mental activity she became exhausted and again confused. In a week she was recovering again; this time her attitude was that she was being kept in prison, that her relatives were all being tortured, that she was to be

tortured also, and finally killed. She no longer held her ideas of unworthiness, but put down the whole trouble to the authority detaining her and keeping her from her home. Her affective state now was that of acute fear, and this again was too much for her low stability, and again confusion recurred. With another interval of about a week she once more commenced to rationalise, she was still very apprehensive, but she was more suggestible ; and, finally, her confidence was obtained, and she began building up experience on the true basis.

It is very difficult, of course, to say whether a confusional phase is likely to occur in the course of any particular early psychosis ; in many cases it arises accidentally as the result of some toxic infection, but there are certain developments which are liable to lead to exhaustion. Such conditions as a rapidly developing paranoid state, an acute anxiety state or a remorse or self-reproach psychosis involve a great expenditure of mental activity by the patient, and are therefore liable to lead to exhaustion, while, on the other hand, phantasy developments are not associated with much emotional activity or intense intellectual effort, and therefore do not commonly exhibit a confusional phase.

The practical question presents itself as to whether it is advisable to encourage confusion in a case which is showing every evidence of building up an organised scheme of false ideas, and I feel that if a confusion can be induced early enough, the chance of obtaining access to a patient during the recovering period would justify whatever measures were taken. I was much impressed with the early recovery of many of the psychoses met with in service patients during the war, and I think that in most of them the explanation was to be found in the element of exhaustion with mild confusion which was almost invariably present. I will mention one case which came under my care. An officer of excellent past record and good physical health was sent to me with what appeared to be a well-established paraphrenic condition. He had the delusions that he was thought to be a spy, that he had given important plans away to the Germans ; he heard voices accusing him of various misdeeds, and he saw Germans wherever he went. There was no confusion, but he was intensely suspicious and hostile, and the circumstances of the hospital were such that he could not be placed under the requisite care and control necessary in his state. Eventually he was persuaded to submit to a hypodermic injection of morphine and hyoscine. Under the influence of the drug he was got to bed and kept there with an injection twice daily. This was continued for four or five days, during which he remained in a semi-stuporose confused state, then, arrangements having been made for his removal elsewhere, the injections were stopped and the patient allowed to adjust himself to his environment. It was then found that his suspicions had quite disappeared, his former delusions and hallucinations had faded to that

dream-like intensity so characteristic of the recent memories of the confusional case, and within a few days' time the patient was perfectly readjusted with a good insight into his previous psychotic condition. In this case the derangement was caught at a very early stage, it could not have been in existence at the outside for more than two months, therefore the delusional compound was poorly organised and easily broken up to leave the field clear for a proper readjustment. One cannot assume, of course, that the case would not have terminated favourably under more usual methods of treatment, but certainly I have never observed such a remarkably complete recovery of sanity in so well developed a delusional state in the very brief period of time, and I feel that the case is exceptionally interesting from this point of view.

In conclusion, I would again emphasise the necessity of not allowing the systematic classification, which is applicable to long-standing cases, to obscure the fact that the early case almost invariably shows change of phase before the secondary final adjustment is reached ; and I would draw attention in regard to the particular phase of confusion to that very old tradition that an acute infectious disease, probably accompanied by delirium, is often beneficial to a mental patient so far as his future mental state is concerned.

(The discussion which followed will be found on p. 546, vol. lxvii, 1921.)

The Goldsol Test in Mental Disease.⁽¹⁾ By P. W. BEDFORD, M.D., D.P.M., Assistant Medical Officer, West Riding Asylum, Wakefield.

GENERAL paralysis is often very difficult to diagnose, and the responsibility of coming to a decision is not lessened by the fatal character of the disease. Amongst the protean manifestations of neuro-syphilis, the early and definite recognition of this, its most deadly and intractable form, offers a problem in nice discrimination--a problem which is in the present tense and imperative mood. According to Southard, of 119 cases diagnosed as general paralysis, *post-mortem* examination revealed a diagnostic error of 26 per cent. If anyone had been able to devise a less intricate test for syphilis, the Wassermann reaction would never have survived to the present day. It is one of the most complicated methods that have been applied to diagnosis in medicine. Any simple test, therefore, which promises increased precision in diagnosis, is worthy of that careful investigation which is the half-way house to knowledge.

The general utility of any diagnostic method, and in a measure its reliability, is determined chiefly by the simplicity of its unspecialised

(1) A paper read at the Annual Meeting held in London, July 12th, 1921.

technique and its consequent ease of application. This requirement is fulfilled by the goldsol test, for it consists merely in making a series of ten saline dilutions of the spinal fluid to be examined, and adding thereto a small quantity of the goldsol reagent. Its technique is so simple that the performer cannot make a mistake without bringing the most ingenious carelessness to his aid.

The performance of the test itself occupies but fifteen minutes, and is within the reach of every clinician and medical officer. The result may be read a few hours later, and is interpreted according to the degree of precipitation of gold that has occurred—as evidenced by various colour-changes in the goldsol—and according to the particular dilutions of spinal fluid most affected by these changes.

The typical reaction obtained with the fluid of a case of general paralysis consists in a complete precipitation of the first four or five dilutions, so that their ruby colour is entirely discharged, with partial precipitation of the next two or three, and no change in the remainder. This complete decolorisation of the first four, five or six dilutions is clear-cut and unmistakable, and does not occur in any other disease than general paralysis. It is claimed that in cerebro-spinal syphilis and tabes dorsalis the maximum colour-change occurs in the third, fourth and fifth dilutions, but that precipitation is never complete. In epidemic meningitis the chief reaction is said to occur in the sixth to the ninth dilutions, and should be of still less degree. If these results are shown graphically by assigning figures to the five different degrees of precipitation, certain "curves" become apparent, of which the "paretic" curve is the most characteristic. The so-called "luetic" curve of cerebro-spinal syphilis I believe to be of doubtful value. Of the "meningitic" curve I have had no experience.

A completely negative reaction would show no colour-change at all, and would be indicated by a straight line. In reading the result, it is the *degree* of decolorisation and not the number of dilutions affected which has the diagnostic value. But an absolutely negative reaction in which there is no colour-change whatever is, in my experience, rare. Out of my series of 250 examinations only two fluids gave this result. The great majority of fluids from the insane react to the extent of the first or second degree of colour-change, and these should be considered negative. A third-degree reaction is doubtful, a fourth-degree highly suspicious, and a fifth-degree reaction is definitely positive. The whole value and success of the test depends upon the use of a good goldsol, and its preparation is the only uncertain part of the procedure.

The method I have found most reliable is that described by Weston, Darling and Newcombe, and modified by Lowrey. The process is simple enough, but care and attention to detail is essential, for all possible sources of error are not yet known. Failures are usually trace-

able to impurity of the water used. Before the goldsol can be used with confidence for diagnostic purposes it must fulfil certain requirements. The chief test should be, that it must give a typical reaction with a known paretic fluid, and that it must produce no reaction greater than a No. 1 or 2 change with a known normal fluid. Further, on the day on which it is used the sol must be neutral to the alizarin test, for alkaline sols are almost inert, and acid sols give atypical reactions. Another suggested criterion of suitability is the saline test, to discover whether the sol is "protected" or not. A non-protected sol—which is the type required for the goldsol test—is one that is completely precipitated in one hour, when 5 c.c. of it is mixed with 17 c.c. of a 1 *per cent.* solution of sodium chloride. In appearance the sol should be clear by transmitted light, and by reflected light a very slight turbidity, not amounting to more than a golden shimmer, is permissible.

In my experience good goldsols have a beautiful ruby-red colour, but the orange-red sols give the most clean-cut reactions. If kept well stoppered in a dark place, the sol retains its properties for a considerable period, but tends to become slightly alkaline, and therefore less sensitive. In bright light it becomes darker, and may lose its reliability.

In order to test the value of the reaction I examined the spinal fluids from 250 selected cases. These were arranged in twelve groups, as follow: Nine groups of non-syphilitic psychoses, each group containing 15 cases and totalling 135 fluids; one group, comprising 84 general paralytics; one group, containing 19 fluids from miscellaneous diseases; and one group of 12 fluids, obtained *post-mortem*.

For control and comparison, the Ross-Jones and the Wassermann reactions were used as representing reliable tests. The non-luetic psychoses chosen were: Mania, melancholia, epileptic insanity, amentia, dementia praecox, adult dementia, senile dementia, confusional insanity, and delusional insanity; 15 examples of each type. Of these 135 non-syphilitic fluids, *not one* gave a "positive" goldsol reaction, and only two were "doubtful," both these fluids being from cases of severe epilepsy that had the facial appearance of congenital syphilis.

Whereas the Wassermann test gave two positive reactions, one of them being in an epileptic imbecile and the other in an epileptic dement with an old-standing hemiplegia, the Ross-Jones test gave two positive reactions and thirteen doubtful ones in these non-luetic psychoses. The "miscellaneous" group does not contain a sufficient number of examples of any one disease to justify generalisations, but it displays some points of interest. Thus, the five instances of cerebro-spinal syphilis all gave a goldsol reading that reached the third degree of colour-change—that is, a suspicious or doubtful reaction. Similar results were obtained from two cases of old-standing hemiplegia, possibly

due to syphilitic arteritis. Two cases of tabes dorsalis and two of disseminated sclerosis gave negative tests, as did also three cases of alcoholic psychosis, selected because they were suggestive of general paralysis; the laboratory findings disproved the suggestion. Negative results were obtained in motor aphasia, Huntington's chorea and glioma of the cerebrum.

The examination of the twelve fluids obtained *post-mortem* by puncture of the cisterna cerebro-medullaris showed that the goldsol test and the Wassermann reaction are equally reliable when applied to specimens taken after death.

Regarding general paralysis, the 84 cases in this group comprise 79 ordinary examples of this disease, 2 juvenile cases, 2 chronic cases and 1 senile case. Out of the total of 84 fluids, 80 fluids gave a positive goldsol test, 76 gave a positive Wassermann reaction, 67 gave a positive Ross-Jones test, and 75 showed agreement in reacting positively to both goldsol and Wassermann tests. A few examples may be singled out for special comment. Thus, one fluid was from a patient with grossly obvious physical signs, yet both Ross-Jones and Wassermann reactions were negative; not so the gold test. Another noteworthy instance is that of a woman who was diagnosed a paretic three years ago and reached the helpless and bedridden stage. Within the last year, however, she passed into a phase of such marked remission that she has since been discharged to the care of her friends. Her spinal fluid gave a negative Wassermann reaction during the period of remission, whereas the goldsol test was positive. Puncture of the two congenital cases produced fluids which reacted positively to all three tests, whereas the fluids from the two chronic cases were both negative. Of these latter, in one the clinical diagnosis is open to doubt. The other is interesting. The patient was admitted twelve years ago at the age of forty-nine. In 1911 his spinal fluid gave a positive Wassermann reaction; in 1912 the reaction was weak, now it is negative. Speech defect, pupillary reactions and absurdly grandiose delusions leave little doubt of the diagnosis. The senile case refers to a man who was admitted six years ago at the age of sixty-nine. His spinal fluid is negative to all tests. He is still alive and shows some of the signs of general paralysis. It is claimed that the goldsol test is more sensitive than the Wassermann reaction, without being any less reliable.

Thus an analysis of eleven separate series of investigations, carried out by different observers and comprising 523 cases of clinically obvious general paralysis, shows that the goldsol test was positive in 485, the Ross-Jones in 470 and the Wassermann in 465—a difference of 4 *per cent.* in favour of the gold test.

Again, in tabes dorsalis, Lee and Hinton obtained positive gold reactions in 24 cases, of which 9 gave negative Wassermann reactions

in both blood and spinal fluid ; of these 9, 2 gave no other spinal test positive. These 24 patients all had a definite syphilitic history.

Further, in 8 cases of syphilis without clinical evidence of involvement of the nervous system and with negative Wassermann reactions in the spinal fluid, 4 positive goldsol reactions were obtained. The blood Wassermann was positive in these 4 cases.

Weston, in an article questioning the relationship of the gold test to syphilis, gives in support of his argument details of three mental cases, who during a period of two years under repeated examinations always gave "paretic" curves with the gold test and negative Wassermann reactions. But in a footnote to his paper he records that one of these patients, tested once more while the article was in the press, had developed a positive Wassermann reaction.

Surely all this indicates that the gold test is of value in the early diagnosis of neuro-syphilis, which is the view put forward by Lange originally, and since endorsed by Kaplan and by Black and his co-workers. If this claim can be definitely established, the possibility of preventing or of modifying severe neuro-syphilis by timely treatment will be greatly increased. The early involvement of the nervous system by syphilis is well known. By the time neurological signs and symptoms have appeared, too often irreparable mischief has been done. As yet there is no evidence that the goldsol test is specific for syphilis in the sense of an immunity reaction. But it is specific for general paralysis in so far as it is so strikingly constant and more frequent in this disease than in any other.

Another great merit of this test is, that it is as equally well applicable to old as to fresh spinal fluids. In my experience, specimens kept eight or ten days in the ice-chest do not materially alter in their reaction. One author found that a spinal fluid was as active after a year as in the beginning. Of course, if the fluid is contaminated so that it becomes turbid through bacterial multiplication, it is untrustworthy. The value of this is, that a sample of paretic fluid can always be kept at hand in order to test new goldsols as they are made. The permanence of the reaction is another outstanding feature. After the first twelve or fifteen hours the tubes show little change for several days, except perhaps to become rather paler in tint. If the tubes are stoppered and kept in the ice-chest the reaction may be preserved for weeks.

The test has other interesting characteristics. The presence of a small amount of blood in the spinal fluid does not render it unfit for testing. Fluids with a faint pink tinge, or which deposit on standing a clot the size of a large pin's head, are admissible. Such specimens should be allowed to sediment overnight and the clear, supernatant fluid used. I have found this preferable to separation by centrifuge. This amount of blood may cause slight changes in colour in the higher dilutions, but

will not convert a negative into a positive reaction. Of course, gross contamination by blood is inadmissible.

The gold test has been applied to blood serum. It was found that a dilution of fresh human serum corresponding to 0·08 per cent. in ordinary salt solution, when used in place of spinal fluid, causes precipitation of gold in the same way as a strongly positive paretic fluid. The test is therefore not applicable to blood as a means of diagnosing general paralysis.

Warwick and Nixon examined the fluids of 240 miscellaneous cases, comprising a great diversity of medical and surgical patients. They found that a reaction of a third or greater degree occurred in only nine instances. Of these, four were syphilitic conditions and the remaining five were affections of the nervous system, such as sciatica, myelitis, etc., which were possibly associated with syphilis. On the other hand, Moore writes that a "paretic gold curve" has been obtained in such diseases as lead poisoning, tuberculous meningitis and multiple sclerosis. Further investigation along these lines is obviously indicated, especially in incipient nervous and mental disease.

As a means of measuring the efficacy of treatment the goldsol test would appear to be of little or no value. Under treatment some paretic fluids lose their positive reaction, others remain unchanged, whilst yet others give a more intense response of the nature of a "provocative reaction."

The goldsol test has its origin in certain unexpected results that were obtained in experiments on the differentiation of proteins by colloidal gold. It was known that goldsol was electrically charged and could be precipitated by a suitable electrolyte. Zsigmondy then discovered that the addition of a very small quantity of protein to the goldsol conferred "protection" on it and prevented the gold from being precipitated. He found, further, that different proteins differ in this protective action, and he was able to determine their relative protecting power or "gold number." Lange then attempted to apply this method in investigating the nature of the proteins precipitated from spinal fluid by ammonium sulphate solution. Contrary to his expectation he found that spinal fluid containing an excess of protein precipitated the goldsol instead of protecting it. He was unable to explain this occurrence, but the reaction suggested the possibility of using goldsol as a test for neuro-syphilis. The practical application of this idea resulted in the goldsol test, and his discovery that general paralysis gives an absolutely typical reaction. Since that time the reaction has been tested by many observers and has yielded consistent results. It is now generally agreed that in the goldsol test we have a diagnostic method of greater precision and discriminative value than any other hitherto in use, and that it is the most valuable of all confirmatory evidence.

Before discussing the various hypotheses that have been put forward to explain the mechanism of the goldsol reaction, it becomes necessary to consider briefly the composition of its three ingredients, namely, the spinal fluid, the saline diluent, and the goldsol itself. I shall refer to those properties only which appear to have some bearing on the test.

The identity of the protein or proteins present in spinal fluid is in doubt. For practical purposes it would seem advisable to regard the protein of normal spinal fluid as a mixture of albumen and globulin, the latter preponderating in the proportion of about 3 to 1. A well-marked protein increase is always pathological. Taking 0·25 grm. of protein per litre of fluid as the normal, cerebro-spinal syphilis may show 1·2 grm., tabes dorsalis 1·5 grm., and general paralysis 2·2 grm—that is, there may be eight times as much protein in the spinal fluid of paralysis as in the normal: a fourfold increase is common. On the other hand, a normal protein content does not exclude organic changes in the central nervous system.

The saline solution which is used in diluting the spinal fluid contains 0·4 per cent. of chemically pure sodium chloride. This particular strength is used because it has been found experimentally that by itself it causes no precipitation of the colloidal gold as a stronger solution would do, yet is of sufficient concentration to hold the globulins and nucleoproteins of the spinal fluid in solution. Its presence is essential to the test, for pathological fluids used by themselves or diluted with distilled water produce no effect upon the goldsol. Its virtue is dependent upon its electrolytic activity. When the salt is dissolved the salt molecule itself is broken, so that ions of sodium and of chlorine move about in the water. Moreover, the sodium ion is associated with a relatively enormous electro-positive charge, and the chlorine ion with an equal and opposite electro-negative charge. Now the saline solution has become a good conductor of electricity. When it is remembered that the particles in a goldsol are known to be electro-negatively charged, the significance of the electro-positive sodium ion in the mixture becomes obvious. If there were no electrolytes, such as salt, electric charges could not be carried about and chemical reactions could not occur.

Biological phenomena are conditioned in the same way—for the living body may be regarded as a framework of non-conducting material immersed in and soaked by solutions of electrolytes. It is the electrolytes that put life into the proteins and control metabolism, just as the figure placed in front determines the value of an otherwise meaningless row of cyphers.

Colloidal solutions of metallic gold have been known for over 200 years. The "potable gold" of the alchemist in search of the elixir of life was probably a goldsol: it was a solution of gold salts in ethereal

oils. With a better understanding of chemistry, the distinction between colloids and crystalloids, at one time thought to be fundamental, is now known to be a difference in degree only. They are not different kinds of matter, but rather are different states of matter. The colloid is the dynamical state, the crystalloid the statical condition. "Colloid," then, is not a chemical entity like "acid" or "base," but is expressive of certain physical elements like mechanical heterogeneity. The word "colloid" has thus lost some of its original significance; for the colloidal metals have the chief properties of colloids but never are "glue-like." In a colloidal solution of any substance the particles are composed of variable and rather large numbers of molecules of that substance. It presents an instance of very fine, but not molecular subdivision. Colloidal solutions or "sols" thus occupy an intermediate position between true solutions on the one hand and suspensions on the other. There is thus an unbroken continuity from the coarsest grained heterogeneity of suspensions, through the highly dispersed state of colloidal solutions, to the apparent homogeneity of the true solutions and the molecular state in gases. Now the goldsol used in this test is composed of fine particles of metallic gold suspended in water. Having regard to the density of gold, it is a little surprising that the particles do not sediment. But as a matter of fact goldsols do not precipitate at all so long as the subdivision of the gold is maintained. One of Faraday's goldsols made in 1858 is still preserved in the Royal Institute.

The explanation is molecular motion. It has recently been shown by Perrin that this movement of particles is identical with that of the molecules of the containing liquid as postulated by the kinetic theory. If it be assumed that the kinetic theory of gases is applicable to colloidal solutions, it follows that the gold particles in a sol are battered on all sides by a hailstorm of molecular impacts from the surrounding water. If the gold particle is very large in comparison with the molecules of water by which it is surrounded, it will be bombarded from every direction by a large number of water molecules moving in all possible directions, so that the blows will neutralise one another and no movement will occur. But as the gold particle becomes smaller and smaller until it is not so very much larger than the water molecules themselves, it will be hit by fewer and fewer molecules simultaneously, so that the forces acting on it will cease to be balanced, the unidirectional impacts will rapidly increase, and the particle will be driven hither and thither in a rapid sequence of zig-zag straight lines till it begins to behave like a molecule itself, and is swept along in the endless molecular movement.

Thus the cause which prevents the particles in a goldsol from settling is in no way different from the cause which prevents the earth's atmo-

sphere from subsiding to a snowy level a few feet deep on the surface of the planet. Moreover, each gold particle in a sol ordinarily possesses an electric charge, which is usually negative in sign because the dispersion medium—that is, the water—has such a high dielectric constant. This charge can be varied and even reversed by the addition of an electrolyte like sodium chloride, and may become zero at suitable concentrations. In this condition the sol becomes very unstable, and subsidence preceded by coalescence of the small particles which have thus been deprived of their charge, readily but not necessarily occurs, for the molecular movement may be sufficient to keep the particles in suspension. Whenever sedimentation does occur it is preceded by the aggregation of the particles into larger particles, which finally attain a diameter of one thousandth of a millimetre or over, and slowly subside.

Hence it may be inferred that the first step in the precipitation of the goldsol by the spinal fluid of a general paralytic is the neutralisation of the negative electric charge on the gold particles by that of an oppositely charged electrolyte. In the case of common salt this would be the sodium ion. It follows that a possible explanation of a positive goldsol reaction may be that the spinal fluid of a general paralytic contains an excess of sodium chloride or other electrolyte. Now, if the goldsol be examined with the ultra-microscope, the gold particles become visible as brilliant dancing points on a black background. The tiny particles do not float; they move, and with astonishing rapidity. The activity of a swarm of gnats dancing in a sunbeam conveys some idea of the restlessness of these lively and electrically-alert particles.

This movement is able to overcome the influence of gravity, and gives an indication of the continuous mixing up of the sol, which goes on for weeks, months, and even years if the sol is sufficiently stable. So that Graham's statement, made in 1849 with the unconsciousness of the predestined, that the colloidal is in fact a dynamical state of matter, is now shown to be well founded. Yet a few drops of paretic spinal fluid, diluted to the extent of 1 in 320, strikes down these lively particles from their unremitting activity into an inert mass of sediment. This constitutes a "positive goldsol reaction."

But this precipitating effect of an electrolyte upon the goldsol may be delayed or even prevented by the protective effect of mixing the sol with one or more stable colloids, such as albumen. Instances of this curious "protection" are common; for example, ink often contains a colloid, which protects the pigment and prevents it from settling. The question here arises whether the normal spinal fluid contains some protective colloid which is absent from the fluid of a general paralytic. This inhibition of precipitation closely resembles the phenomenon observed in the "precipitin reaction," where an excess of the antigenic protein will prevent precipitation. "Agglutination" is a similar process,

for agglutinins carry positive electric charges whilst bacteria are negative. Other instances of such complex mixtures of interacting colloids occur in the varied phenomena of haemolysis, immunity, and anaphylaxis.

The complexity of the problem now becomes manifest. In delving into it one finds that the deeper one excavates, the greater is the surface to work at and the larger the hole one is in. It may be stated at once that the mechanism of the goldsol test is not yet fully understood. Some of the factors influencing precipitation are known, and have already been described. But the real nature of the substance which initiates the sequence of changes in the goldsol, resulting in its complete sedimentation, is unknown.

Lange suggested that the reaction might be due to certain qualitative changes in the fluid's proteins rather than to their quantitative increase. This is supported by the fact that some fluids which give a typical paretic gold curve show no excess of globulin by the Ross-Jones test. Conversely, a fluid giving a positive Ross-Jones reaction, may be negative with the gold test. Further, globulin collected from large amounts of negative fluids and concentrated in saline solution causes little or no precipitation of gold.

This disposes of Felton's plausible suggestion that the reaction is caused by a change in the relative proportions of the albumen and globulin fraction of the fluid's proteins—that is, a change of ratio implying a quantitative increase of globulin without any qualitative change in its nature. Yet the various types of goldsol reaction can be reproduced artificially by using suitable mixtures of globulin and albumen, the former causing precipitation and the latter conferring protection.

Zaloziecki regards the test as a form of immunity reaction; this is true enough in the sense that probably all the serum reactions are colloidal phenomena. Jager and Goldstein think it may be a physical effect of an electric nature. Eskuchen holds that a pathological increase of albumen is the cause. This is difficult to accept in view of its known protective power against precipitation. McDonagh's hypothesis is, that there is an increase of electrolytes in luetic spinal fluid, and that these are absorbed by the lipoid protein particles, these combined electrolytes being the active bodies. The chief electrolyte in the spinal fluid is sodium chloride; I have not been able to find any record that its percentage is increased in paretic fluids.

Weston's experiments established that the gold-precipitating substance is not present in normal fluids, that it is destroyed by heat, and therefore is not peptone, and that the salts and the copper-reducing substance of the spinal fluid are not responsible.

Cruickshank dialysed paretic fluids for seventy-two hours in a celloidin capsule without finding any trace of gold-precipitating sub-

stance in the dialysate, whereas the fluid within the thimble retained its activity almost unimpaired. This shows that the gold-precipitating substance is present in colloidal form. Now it is known that the Wassermann reacting substance resides in the globulin fraction of the protein of the paretic spinal fluid—that is, in colloidal form. To investigate this similarity Cruickshank precipitated the globulin from paretic fluids, washed it free from albumen, and found that it was very active in precipitating gold and in giving a positive Wassermann reaction. The same experiment performed with the globulin from negative spinal fluids caused no gold precipitation and no Wassermann reaction. Further, when paretic spinal fluids which gave anomalous reactions with the gold test were examined in the same way, the globulin, when isolated, gave paretic reactions ; and it became evident that it was the presence of the albumen that was interfering with the precipitation—acting, in fact, as a protective colloid. For Cruickshank was not only able to convert a positive reaction given by a paretic fluid into a negative one, but could make the fluid react in any zone at will by the previous addition of suitable proportions of human serum albumen to it.

It seems hardly possible that the factors so far discussed do not exert a considerable influence on the reaction. But there are other features that require explanation. For example, if albumen is the protecting agent, how is it that when a spinal fluid is deprived of its albumen by boiling and subsequent filtration, the protective effect of the fluid is not lessened, and may even be increased? The explanation I offer is purely hypothetical, but right or wrong it is of value so long as it tends to further investigation. It seems to me that there must be some change in the electrolytic constitution of a paretic fluid. On this assumption, the problem just stated can be explained by saying that the fluid after removal of its albumen gains in protecting power, because the precipitating electrolytes have been removed along with the albumen, to which they were absorbed in a colloidal union.

Cruickshank seeks to exclude electrolytes as the precipitating cause on the grounds that they are present in such small amounts, and that they would need to be attached to the globulin fraction in such a way as not to be freed by dialysis. But it is an established fact that only minute traces of electrolytes are sufficient to bring about colloidal phenomena, and surely it is no more unreasonable to assume that the electrolytes are absorbed by the proteins in an undialysable combination, than it is to assume that the gold-precipitating substance resides in the globulin fraction because it does not dialyse out. Now it has been shown by Bayliss that if the suspensoid particles of a colloidal protein are given a positive or a negative charge by traces of acid or alkali respectively, the precipitating effect of electrolytes comes into play, and the anion or cation respectively becomes prepotent according

to Hardy's rule. Further, the salts of proteins are electrolytically dissociated in solution. The sodium salt of globulin, for example, partially dissolves into sodium, and a large organic ion which has the properties of the colloidal state, the hydrochloride, dissociates into chlorine and a large, colloidal, organic cation.

Thus by direct chemical means we can obtain the same protein with a negative or a positive charge, and these colloidal ions are very ready to form aggregates. It follows that in an acid spinal fluid the particles forming the internal phase—that is, the protein particles—will have a positive charge, and the converse holds true for an alkaline fluid. This can be demonstrated experimentally, for the addition of small amounts of acid to paretic fluids increases the zone of precipitation, while the addition of alkali diminishes it.

It has already been noted that acid goldsols precipitate with negative fluids and that alkaline sols are inert with positive fluids. This is simply another aspect of the same phenomenon. At this point it becomes obvious why it is necessary that for diagnostic purposes a goldsol should be neutral. In preparing the sol, the reduction of the gold chloride by the formaldehyde is accompanied by the liberation of free acid. If this is insufficiently neutralised by shortage of potassium carbonate in the alkaline solution, or rendered too alkaline by excess of carbonate, the corresponding type of sol will result in each case.

From all this there emerges the important conclusion that in performing the goldsol test we are mixing a negatively-charged colloidal solution (the goldsol) with a positively-charged colloidal solution (the paretic spinal fluid), in the presence of an electrolyte (the saline diluent), and obtaining a precipitate. Further, that the result can be reversed by previously altering the chemical reaction of either colloidal solution.

It seems to me, therefore, that the change which has occurred in the paretic fluid is that it has acquired an acid reaction and thereby developed a positive electric charge on its globulin particles. In other words I venture the opinion that the goldsol test is nothing more or less than a rough but easy method of demonstrating changes in the hydrogen-ion concentration of the spinal fluid, or alternatively, that it is an index of the static equilibrium of the fluid's colloidal content. Levinson has shown that such changes in concentration do occur in the meningitides, but the biological phenomena initiating them are yet to seek.

In reviewing the work that has been done on this test, it would appear to be established—

(1) That typical, well-marked reactions are obtained only in general paralysis, tabo-paresis and juvenile paresis; and that the percentage of positive reactions is 95 in these diseases.

(2) That normal fluids give negative reactions.

(3) That the goldsol reaction is more sensitive than the Wassermann

reaction, quite as reliable, and probably of more value in the early diagnosis of neuro-syphilis.

(4) That the test is helpful in the recognition of acute poliomyelitis.

(5) That it may prove to be of much more value in the diagnosis of congenital syphilis than any other tests hitherto employed.

(6) That important points in its favour are : its simplicity minimising chances of error, its performance occupying only a few minutes, and its need of but two or three drops of spinal fluid.

(7) That its chief drawback is the uncertainty of being able to prepare a good goldsol at every attempt.

The present-day tendency to exalt laboratory diagnosis at the expense of clinical experience is liable to cause extravagant claims to be made for such a test as this. But it must be borne in mind that a diagnosis cannot be centrifuged nor extracted, nor even precipitated from a spinal fluid, and that any expectation of obtaining an infallible and characteristic laboratory test is unreasonable.

(The discussion which followed will be found on page 519, vol. lxvii, 1921.)

The Colloidal Gold Reaction in the Cerebro-spinal Fluid.⁽¹⁾ By W. WHITELAW, M.B., Ch.B.Glasg., Director of the Western Asylums Research Institute, Glasgow.

IN this paper I should like to emphasise the technique of the colloidal gold reaction rather than the results I have obtained, for the cerebro-spinal fluids I have been so far able to examine have been mostly from cases of dementia paralytica, and, though the results are interesting and suggestive, the number of cases is too limited to allow one to dogmatise on the findings.

The examination of the cerebro-spinal fluid is essential in the study of neurological conditions. From it we obtain information which is of diagnostic and prognostic value, and, also as shown in the work of Swift and Ellis (1), it is a valuable index of the efficacy of treatment. The three reactions in use at the present day, the Wassermann reaction, the cell count and the globulin estimation, suffice for most of the requirements of clinical diagnosis, but, in the syphilitic infections especially, they have their limitations. From such an examination we can say that a certain case is suffering from a syphilitic infection of the cerebro-spinal axis. We cannot go further. Any reaction that offers to yield fuller information has to be tested. This can only be done by the examination of a large number of cases of different conditions, so that one may establish a foundation from which to build.

An enormous amount of work has been done during the recent development of colloid chemistry towards the elucidation of some of

⁽¹⁾ A paper read at a meeting of the Scottish Division, March 18th, 1921.

the perplexing and complicated reactions of biology. This has been done, to mention a few of these problems, in the blood oxygen content, enzyme reactions, Wassermann reaction, immunity, and the estimation and differentiation of protein substances.

Faraday in 1857 (2) found that goldsols (a sol is a liquid colloid system) were more stable when "jelly" (probably gelatine) was added to them—that is to say the goldsols were protected by adding another more stable colloid to them. Zsigmondy in 1901 (3) investigated this action quantitatively by means of his goldsol, which is itself very stable and is also very sensitive to the action of salts. He determined the protecting power of various proteins and other colloid substances to the goldsol. The degree of protection he expressed as the "gold number" of the particular substance under review. This reaction is used in the identification of proteins.

Lunge (4) in 1912 applied the gold protection method of Zsigmondy to the cerebro-spinal fluid, and found that in certain fluids, instead of getting protection to the goldsol, quite the reverse occurred. This was noted in fluids that had an abnormal protein content and especially in cases of syphilitic disease of the central nervous system. There was an optimum dilution for this reaction and this was evidently specific, so rendering possible the differentiation between syphilitic and non-syphilitic conditions by the colloidal gold. There were two types of reaction recognised by Lunge, the reaction in the "luetic zone" and the reaction in the "meningitic zone." The term "paretic zone reaction" was used by Miller and Levy in 1914 (5).

Technique of the Test.

All glassware used in the test requires to be chemically clean. The water used in the preparation of the goldsol and in the diluting fluid is double distilled through an all glass still, using potassium permanganate. The preparation of the goldsol is as follows: 100 c.c. of the double distilled water are heated in a 500 c.c. Florence flask. During the heating process 1 c.c. of a 1 per cent. gold chloride and 1 c.c. of 2 per cent. potassium carbonate are simultaneously added and the flask well shaken. At the boiling-point the gas is removed, and 1 c.c. of a 1 per cent. solution of 40 per cent. formaldehyde is added rather slowly, the flask being vigorously shaken during this addition. The reaction commences in a few seconds, or at most a minute, when an intrinsic clear bright red colour is gradually developed. A good sol should be pure red in colour, with no suggestion of any blue by any light. It should be clear and transparent in both transmitted and reflected light. It should not dialyse or diffuse. Five c.c. of the sol should be completely precipitated by 1.7 c.c. of a 1 per cent. solution of sodium chloride in one hour. The solution should be neutral in reaction using alizarin red as indicator.

The cerebro-spinal fluid is collected in two chemically clean tubes. The colloidal gold reaction is done with the fluid in the second tube, as a trace of blood interferes with the reading. Fluids can be kept several days provided they are uncontaminated, though I have examined all specimens as soon as possible.

The test is performed as follows: 11 chemically clean tubes are placed in a rack. Pipette into tube 1, 1·8 c.c. 0·4 per cent. saline, and into the other tubes 1·0 c.c. saline. Into tube 1 deliver 0·2 c.c. cerebro-spinal fluid, mix, withdraw 1 c.c. and place in tube 2, mix, and place 1 c.c. in tube 3, etc., to tube 10. Each tube will contain 1 c.c. of fluid in dilutions from 1-10 to 1-5120. Tube 11 contains 1 c.c. of saline only and serves as a control. To each tube add 5 c.c. of the colloidal gold reagent. This can be added with a burette. The reagent should be added and mixed as rapidly as possible. The reading is made after standing at room temperature for 12 hours. Half the above quantities may be used with no effect on the results.

The Reaction Observed.

The reaction observed in the tubes is a colour change due to an alteration in the dispersity of the gold colloid. A normal fluid at the end of 12 hours shows no change in any of the tubes. Such a tube may be represented by the figure 0. The colour changes consist of a series of shades passing from red through blue to a clear fluid with a deposit of blue granules. The shades usually selected to give a standard are red, reddish blue, lilac or purple, blue, grey-blue, and colourless. These shades are given the numbers from 0 to 5 respectively, and from the results one can plot a curve for each fluid examined.

Three types of curves are at present recognised: (1) The paretic curve. This zone comprises the first 3 to 6 tubes in which the reaction is characteristically of the 5 type. (2) The luetic curve. This zone also comprises the first 6 tubes, but the reaction is not nearly so complete. The maximum point occurs in the dilutions of 1 in 40, 1 in 80, or 1 in 160, and the reduction never exceeds a 4. (3) The meningitic curve. Here the reacting zone is in the higher dilutions, with no reduction in any of the tubes up to the dilutions of 1 in 40 or 1 in 80.

Results Observed with the Reaction.

The present results are based on the findings in 63 fluids from 62 patients. The following routine has been employed in the examination of the fluids: (1) A cell-count has been done with the Fuchs-Rosenthal counting chamber as soon as possible after obtaining the fluid. In the few cases in which the cell-count has not been recorded this was due to there being too little fluid, blood being present for too long after withdrawal. No attempt has been made at a differential count. (2) The increase in the protein content has been tested for by the Ross-Jones

method. In a good number of cases this reaction has been confirmed by the butyric acid reaction of Noguchi. The results have been parallel in every case so tested. (3) The Wassermann reaction has been done by the Harrison method, and in the case of the blood, where that has been available, the Harrison method has also been employed. (4) The colloidal gold reaction has been performed as above.

The details of the results are presented in the four tables.

TABLE I.—*Dementia Paralytica.*

Case No.	W.R. blood.	Cerebro-spinal fluid.			Remarks.
		Cell count.	Globulin.	W.R.	
1		15 per c.mm.	+	++++	5555542100
3		15 "	++	+++	5555553100
4		49 "	++	+++	4555553200
5		54.6 "	++	+++	5555551000
6		16.1 "	+	anti-complementary	5555552000
7		Not counted	± trace	+++	5555530000
12	++	153.8 per c.mm.	++	+++	5555310000
13	++	10.4 "	++	+++	5555530000
15	++	12.5 "	++	+++	554210000
17		54.17 "	++	+++	5554432000
18	++	152.7 "	++	+++	5555432000
20	++	15.9 "	++	+++	5555442000
22		Not counted	++	+++	5554422000
23		7.6 per c.mm.	Negative	+	1111100000
24	++	25.7 "	++	+++	5555443210
25		82.5 "	++	+++	5555543000
26		12.2 "	++	++	5554321000
27		99.3 "	+	+++	555442100
29	++	68 "	++	+++	5555552100
30	++	22.2 "	++	+++	5555553100
31	++	Not counted	++	+++	5555544210
32		" "	No test	+++	1243344420
33		" "	..	++	1234443422
34	++	116.6 per c.mm.	++	+++	5555543200
35	++	50.3 "	++	+++	5555443200
36		16.38 "	++	+++	5554432000
38		45 "	+	++	5555552200
39		25.7 "	+	++	5555553200
41		45.2 "	+	++	4445321000
42		41 "	++	+++	5555553310
43		61.7 "	++	+++	5555554310
44		Not counted	++	+++	555543100
49		17.6 per c.mm.	+	+++	5555543100
51	++	37.1 "	++	+++	5555542100
52		98.6 "	++	+++	5555543200
53	±	40.6 "	+	++	5555543300
59		321.9 "	++	+++	5555555210
61	++	45 "	++	++	5555553210
77		9.7 "	±	++	4433221000

The first table contains 39 fluids from 39 cases of dementia paralytica; of these 35 gave a typical reaction in the paretic zone. Two of the four fluids that did not give this curve contained a considerable quantity of blood. For the present these may be neglected, and I shall refer to them later. Another of these cases, No. 23, had a course of intra-spinous treatment over a year ago, and clinically he has remained stationary since that time. His cell-count was within normal limits (9 per c.c.), there was no reaction to the globulin test, the Wassermann reaction was slightly positive, giving a reaction only in the highest concentration of fluid, and the colloidal gold showed a slight reduction in the first 5 tubes, the reading being 1, 1, 1, 1, 1, 0, 0, 0, 0, 0. In one of Miller's and Levy's cases there was a marked diminution in the intensity of the gold reaction after intra-spinous treatment, though the usual result they obtained was to remain "gold fast" as well as "Wassermann fast" (5). The last case in Table I, No. 37, tended to the paretic curve. It read 4, 4, 3, 3, 2, 1, 1, 0, 0, 0. The percentage of positive cases so reads at 97 per cent. This is in general agreement with the findings of other writers. For instance, Miller and Levy (5) obtained 49 paretic curves from 49 cases of dementia paralytica; Miller, Brush, Hammes and Felton (7), 126 paretic curves from 130 cases of dementia paralytica; and Hammes, as quoted by Thompson (8), 42 paretic curves from 43 cases.

TABLE II.—*Dementia Paralytica which are Atypical Clinically.*

Case No.	W.R. blood.	Cerebro-spinal fluid.				Remarks.
		Cells.	Globulin.	W.R.	Gold reaction.	
2		3	+	++	1233221000	14/7/20.
2		29·4	+	++	1223221000	15/12/20.
11	++	39	+	++	1223310000	
16	++	93·7	++	++ +	4442210000	
28		71·5	+	++ +	1233321000	

The next group, as shown in Table II, includes 5 fluids from 4 patients who were atypical cases of dementia paralytica from the clinical point of view. The curves they gave were of the luetic type except in case No. 16, which was of the paretic type, and read 4, 4, 4, 2, 1, 0, 0, 0, 0. Case No. 2, beyond the increase in the cell count, showed very little difference in the two examinations at an interval of 5 months.

TABLE III.—*Other Syphilitic Conditions.*

Case No.	W.R. blood	Cerebro-spinal fluid.				Remarks.
		Cells.	Globulin	W.R.	Gold reaction.	
14	+	5·5	-	++	3112210000	Syphilitic dementia.
57	++	7·6	-	-	1112100000	Syphilitic history.
62	++	13·6	++	++ +	2223422000	Meningeal syphilis.

Table III contains three fluids from syphilitic conditions. These all gave the reaction in the luetic zone. Case No. 62, a case of meningeal syphilis, is in agreement with those of Miller and Levy (5), who found that 13 out of 15 cases of cerebro-spinal syphilis gave a luetic curve; the other two cases gave no reaction. Thompson (8), on the other hand, out of 31 cases of this kind obtained 15 paretic curves, 6 of the luetic type, 6 atypical and 4 negative.

TABLE IV.—*Miscellaneous Group.*

Case No.	W.R. blood.	Cerebro-spinal fluid.			Remarks.
		Cells.	Colloid, dil. 1 in 1000	W.R.	
8	—	2.8	—	—	ooooooocoo
9	—	2.2	—	—	oooooooooooo
10	—	3.0	—	—	oooooooooooo
48	—	8.6	—	—	ooooocoooo
55	—	2.1	—	—	oooooooooooo
10	—	1.3	—	—	oooooooooooo
21	—	1.4	—	—	oooooooooooo
54	—	0.7	—	—	oooooooooooo
45	—	0	—	—	oooooooooooo
63	—	Clot present	++	—	oooooooooooo
60	—	4.5	=	—	11111222210
40	—	1.4	—	—	oooooooooooo
50	—	3.5	—	—	1111122220
58	—	0.2	—	—	0.1211111110
59	—	0.6	—	—	0000000000
47	—	4.5	—	—	0.00000000

Under W.R. blood: — = negative, = = trace positive, + = positive,
++ = strong positive.

Under cells: Number given per c.mm.

Under gold: — = no precipitate, = = trace, + distinct, ++ = marked precip.

Table IV shows the findings in 16 cases of various other conditions, such as dementia praecox, manic-depressive insanity, cerebral tumour, epilepsy, etc. Twelve of these were negative. Two cases, Nos. 63 and 60, one a case of cerebral tumour, the other a case of traumatic insanity, showed the reduction of the colloid in the higher dilutions—the meningeal or chronic curve. This change is obtained in acute meningeal infections and in the late stages of tuberculous meningitis (Miller and Levy). One also obtains such a reaction in fluids which contain a mixture of blood; Harrison (9), among others, mentions this. It is of interest in this connection to refer again to Cases 32 and 33—the two cases in the first table that had blood present. They showed as if they had two curves—a luetic curve and then a curve in the higher

dilutions superimposed. One read 1, 2, 4, 3, 3, 4, 4, 4, 2, 0. One case of manic-depressive and one case of chronic delusional insanity showed a slight reduction in the luetic zone. Unfortunately the blood for the Wassermann test was not obtained from either case.

Nature of the Reaction.

The exact nature of the reaction is at present not known. This is natural when we consider that our knowledge of the chemistry of the proteins does not extend very far, and that the electrolytic changes which take place in the colloids are not fully understood. The generally accepted view regarding the reduction of the colloidal gold which takes place on the addition of a pathological spinal fluid is that it is due to the action of positively charged ions present in the fluid. Lange (4) was inclined to the opinion that the reduction was an indication of different qualitative mixtures of the protein substances rather than a quantitative change. This is supported by the fact that the reactions bear no relation to the amount of protein present as revealed by the ordinary tests.

Most colloid sols in water—hydrosols as they are termed—have a negative electric charge; a few are positive, as the oxides of the metals, etc. Colloids are reduced or precipitated out by salts, and it has been shown that it is the ion of the opposite charge that is responsible for this, and the power of reduction is proportional to the valency of the ion (see Taylor, 6). Also it has been shown that, as well as one colloid protecting another, as I mentioned at the beginning of this paper, some colloids precipitate others. This also depends on the electric charge. Colloids with different electric charges precipitate each other (Lottermoser, 11, and Linder and Picton, 12). Colloids with the same electric charge do not precipitate out, but the mixed sol acquires the stability of the more stable component (Henri, 13). The precipitation of colloids with different electric charges takes place only at optimum dilutions, no reaction taking place at either side of this optimum.

McDonagh (10) has brought evidence suggestive of the fact that the reaction depends on the hydrogen ion concentration of the fluid. He added acetic acid or ammonia to normal and paretic fluids. No reaction took place on the addition of ammonia to a paretic fluid, but acetic acid with a normal fluid might give a paretic curve. Acetic acid is positive on account of its hydrogen group, while ammonia is negative from its OH group. Acetic acid should then precipitate colloidal gold, and also cause a precipitation when added to a normal fluid, since the colloidal gold is negative. On addition of ammonia to a paretic fluid the electric charge will be reversed and no precipitation will take place in the goldsol. This is what takes place according to McDonagh's facts.

The nature of the particles in the cerebrospinal fluid which bear the positive charge is still not quite clear. Cruickshank (14) locates the substance giving this reaction in the globulin fraction.

A paretic curve has been obtained in conditions other than dementia paralytica. As noted above, out of 31 cases of cerebro-spinal syphilis, Thompson had 15 cases which gave a paretic curve. He states that of these 15, all but 3 showed marked mental symptoms: while in the 16 with the milder gold reaction the mental symptoms were in the background. In disseminated sclerosis Moore (15) showed that a paretic curve was the usual reaction, and in 20 cases obtained such a reaction in 18. Thompson had 5 cases of disseminated sclerosis which gave a paretic curve, and Adams (16), out of 41 cases of this condition, obtained a paretic curve in 5 and a luctic curve in 34. In addition to these a paretic curve has been occasionally found in a few other conditions, such as brain abscess, Warwick and Nixon (17), 1 case; cerebellar tumour, Thompson, 1 case; epilepsy, Larkin and Cornwall (18), 1 case; etc. These conditions would indicate a more or less destruction of nerve-cells, and, as Thompson suggests, a paretic curve points towards a parenchymatous involvement of the brain.

Conclusions.

(1) The colloidal gold reaction is a laboratory test, and can be performed rapidly with a minimal amount of cerebro-spinal fluid.

(2) Extreme care is necessary in the cleaning of glassware and the preparation of the reagents.

(3) The paretic reaction occurs in dementia paralytica with great constancy but is obtained in some other conditions, and so the results from a laboratory test such as this should only be considered in relation to the other evidence in the case, both clinical and pathological, as the tendency might be to depend too much on an unknown test of this kind at the expense of the other facts.

(4) Wider use should be made use of the test in order that numbers will eliminate discrepancies.

In conclusion I would like to thank the medical superintendents and medical officers of the various asylums for the facilities they granted me to obtain the material for this paper.

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Part II.—Reviews.

Sexualpathologie. Dritter Teil. Von Dr. MAGNUS HIRSCHFELD. Bonn : Marcus und Weber's Verlag. Pp. xi + 340, Svo.

This is the third and last volume of Dr. Hirschfeld's handbook of *Sexual Pathology*. The earlier volumes have previously been noticed in the Journal, and this final volume confirms the impression that we here have a work of the first practical importance in this special field, and completely superseding Krafft-Ebing's *Psychopathia Sexualis*, once so well known but long since out of date, great as was its pioneering significance half a century ago. Dr. Hirschfeld is not concerned to discuss the literature of his subject, and scidom either criticises or approves the investigations of others. He relies on his own experience and the conclusions to which that experience has led him; frequently he devises his own technical terms (which are sometimes open to criticism). But his practice has been so extensive during the past twenty-five years, both privately and medico-legally, and his judgment is usually so sound, that no living expert could hope to put forth a treatise likely to rival this work in practical value. It is much to be hoped that it will soon be translated into English.

It is impossible here to deal in detail with the numerous subjects included in the present volume. It must suffice to mention a few of them. The author describes the general subject of this volume

as "disturbances of sexual metabolism with special reference to impotence," but, as here understood, this subject covers a vast number of topics, though they may be said to be bound together by the fact that variations in hormonal processes—and such variations may be very numerous—all tend to induce deviations of the sexual impulse which diminish or altogether abolish the strength of the normal impulse.

The first chapter covers concisely but comprehensively in eighty pages the whole vast field of sexual symbolism, that is to say, the erotic fetichisms, of which, it is probable, more are here recorded than have ever been noted before. We then pass on to hyper eroticism, which, as here understood, overlaps sexual symbolism, and is made to include, not only the unquestionable anomalies of excess, but sadism, which is very dubiously an anomaly of excess, and other deviations bordering on fetichism. The third chapter deals directly with impotence, beginning with an exposition (with diagram) of the complicated subject of genital innervation, and proceeding to separate methodically the various forms of impotence in both men and women. In the succeeding chapter, on the sexual neuroses, the author comes most closely in touch with psychiatry, for he is here occupied with, among many other allied subjects, hysteria, anxiety-neurosis, sexual hypochondriasis, delusions of jealousy, masturbational neurosis, etc., and sets forth his cautious relationship to psycho-analysis. Finally, the concluding chapter presents the psychologically interesting and medico-legally important subject of exhibitionism.

Throughout, Dr. Hirschfeld maintains the strictly practical character of his work, and throughout, also, he bears in mind that hormonal basis of the sexual life to which he was already attracted before it gained its present prominence in medicine. HAVELock ELLIS.

Symptomatology, Psychognosis and Diagnosis of Psychopathic Disease.

By BORIS SIDIS, A.M., Ph.D., M.D. Edinburgh: E. & S. Livingstone, 1921. Pp. xix + 448. Large crown 8vo. Price 21s. net.

The student of morbid psychology and psychotherapy is living in a difficult age. He is bombarded on all sides by books dealing with these subjects, and the ammunition seems to be unending. Moreover, there are many different schools of thought, and each one claims that its teaching is the only one to be relied upon. The arguments used in sustaining the rival claims are not always advanced with the sobriety one expects from a scientific discussion, and in many cases a certain amount of heat is engendered in the combatants. This we have grown accustomed to, but in the introduction to the volume under review we meet with language which is out of place in a scientific work, and the only parallel which suggests itself is the *otium theologicum*. The author in writing of Freud says that psycho-analysis is "sheer humbug," "Talmudic hair-splitting sophistry," "a mental debauch," "a form of medical bacchanalia," "better Christian Science than psycho-analysis." These statements often appear in italics—a form of letter-press which the author is very fond of—and are only a sample of many others. Through the greater part of nineteen pages of introduction, and occa-

sionally in the remainder of the book, psycho-analysis, like King Charles' head in the case of Mr. Dick, will obtrude itself, and when it comes it is execrated. It is a strange phenomenon, for, to an ordinary observer Dr. Sidis would seem to follow in paths similar to those trodden by his adversary. For example, the book is written to indicate the powerful influence of the subconscious on psychopathic states. The author believes that no diagnosis and treatment is possible without a complete history of the life of the patient, and especially of his earliest years. He also attaches a considerable value to the study of dreams, and though he declaims against Freud's work in the sexual sphere he discusses a case at considerable length, recounting unsavoury details of a sexual nature.

It is a pity that Sidis has allowed his zeal to outrun his discretion, as it causes the reader to feel that one who is so intemperate in his language may not be a safe guide to knowledge, with the result that the remainder of his book is unread. This would be a matter for regret, for there is much therein to interest and to instruct.

Psychognosis means "a working knowledge of the patient's soul," and this is to be attained "by all kinds of methods—hypnoidal, hypnotic, and especially by a close observation of the waking states." Most readers will find the chief interest of the book in the account of the hypnoidal state, as this is a subject which the author has made particularly his own. It is a sub-waking state, in which the patient, though not asleep, is yet not fully awake, and is in that half-drowsy condition in which we hover between wakefulness and sleep. The hypnoidal state may lead to sleep or hypnosis. Details are given as to how the state may be induced, and these consist chiefly of quietness, darkness, the closure of the eyes, and some monotonous stimulus. When he is in this state it is more easy to tap the subconscious than in the ordinary waking state. An interesting account of hypnotic states and hypnoid states is given. The latter signifies the condition which exists in phenomena such as automatic writing, crystal-gazing, and double or multiple personality.

It is impossible in a short review to give an account of the author's views on hallucinations, aphasias, amnesias, etc., but it may be remarked that there is plenty of food for discussion under these headings. His classification of mental diseases is simplicity itself, and if it could be accepted, would save much time and trouble, but one wants further proof than the *ipse dixit* of the author. For example, general paralysis and dementia praecox are "organopathies" in which there is death of the neuron. "Neuropathies" are diseases in which the neuron is affected by toxic products, and include manic-depressive insanity and all the mental affections caused by poisons, such as chloral, etc.

Two of the most interesting chapters are those in which actual cases are recorded, and in whom the "psychognosis" has been worked out by hypnosis or by hypnoidal states. One longs to know the method of treatment adopted by Dr. Sidis, but he is stern with us, and keeps strictly to the text of his title, namely "symptomatology, psychognosis and diagnosis."

R. H. STEEN.

Einführung in die psychiatrische Klinik. By Prof. EMIL KRAEPELIN.
Leipzig: Johann Ambrosius Barth, 1921. Fourth, fully revised
edition. In three volumes, 8vo, paper boards. Vol. I, pp. 263,
price 38 marks. Vol. II, pp. 314, price 44 marks. Vol. III,
pp. 407, price 52 marks.

The second edition of Kraepelin's lectures on clinical psychiatry, published in 1905, is very familiar to our readers, in translation if not in the original. A third German edition appeared in 1916, and now we have another in the volumes before us. In these, however, we have very much more than a revision of those lectures. What here remains of the famous lectures is confined to the second volume; the first and third volumes are new. Each of the three—which are sold separately—is independent of the others, differing from them in its scope, and to some extent also in the class of readers to whom it will chiefly appeal.

Considering first the second volume, we observe that the number of the lectures is reduced from thirty-two to twenty-five, and by a process of checking we find that, of the ninety-three clinical cases described in the second edition, only forty-seven remain, to which twenty-eight new ones have been added. The order in which the cases are presented has been radically altered. Whereas formerly, for purposes of comparison and finer contrast, examples of clinical states having more or less outward resemblance to one another were grouped together (for example, various conditions in which delusions are prominent), the cases are grouped now, not according to present state, but according to the disease forms to which they belong. Thus, all the cases assignable to manic-depressive insanity are kept together, however outwardly diverse, and similarly all those assignable to dementia praecox, and all those to general paralysis. The change is a great improvement. At the same time there has been no widening or narrowing of the scope and purpose of the lectures as a whole, which are intended to present to the student as vivid a picture as the written word can give of cases of mental disorder as they are most commonly met with.

The first volume is a text-book. After fifteen pages of psychological prolegomena, there are 108 pages on the clinical forms of insanity, arranged under the heads of psychoses produced by bodily injury from without, psychoses following internal bodily disease, psychogenous affections, constitutional mental disorders, and congenital states. Then come forty-one pages on clinical pictures considered in relation to disease forms, and thirty-two pages on clinical signs and examination of patients; these two chapters together provide a magnificent and altogether unique apparatus of differential diagnosis. Tables of weights and measures follow, and then a list of 170 questions useful for testing a patient's mental state (with three sets of specimen answers to these), a chapter on the word-association test (with four full examples), a chapter on Binet-Simon tests, and a chapter on drugs and other means of treatment. We should hardly have believed it possible to compress so much practical information into so small a volume of decent print. This book is a very striking example of what can be achieved in the way of sound brevity by one who is a master, not only of psychiatry, but of authorship. It puts all other small and medium-sized text-books of our subject deep in the shade: and besides being much better

adapted to the requirements of students preparing for examinations (such as for diplomas in psychological medicine) than any other psychiatric text-book that there is, it will be of great interest and convenience to experienced psychiatrists, however familiar they may be with its author's other and more voluminous writings.

The third volume consists of a new set of clinical lectures, quite in the style of those we know so well, and infused with all their charm, but dealing with a different class of material. The ninety cases here described are examples of rare conditions, or are cases presenting special difficulties. It is obvious that such a series could not nearly exhaust the multitude of rare conditions met with, but the cases have been selected to afford as great a variety as their number admits, and are gathered from every corner of the field of clinical psychiatry. The volume is intended, not at all for examination purposes, but to stimulate scientific study. Kraepelin would dedicate these lectures to his younger colleagues in asylum practice : "To counteract the paralysing influence of the monotonous care of the frightful mass of patients who are mentally defunct, the attainment of a higher point of view is necessary. May these lectures help to bring again and again before the young physician's eyes the infinite wealth of our science, in phenomena, in problems, and in prospects."

This remarkable book, or trinity of books, is one that every psychiatrist will wish to add to his library, however modest, however large.

SYDNEY J. COLE.

Psychopathology. By EDWARD J. KEMPF, M.D. London: H. Kimpton, 1921. Royal 8vo. Pp. xxii + 762. 87 illustrations. Price three guineas.

In this imposing and almost sensational volume a systematic attempt is made to interpret the psychoses as the outcome of uncontrollable, asocial, sexual cravings. The author states his case bluntly and without reserve, and he has brought together an astonishing amount of material in support of his views. Unfortunately the sentences are so awkwardly put together that it is difficult for the reader to assimilate easily and with comfort the facts and theories which Dr. Kempf, with obvious sincerity and extreme enthusiasm, regards as essential for a proper understanding of the insane. In spite of this, and the fact that there is scarcely any view expressed in this book to which unqualified adherence could be given, the volume deserves, and well repays, careful consideration, and it may be regarded as a definite addition to our knowledge of the insane.

The first chapter is devoted to a summary of the views previously expressed by the author in his monograph, *The Autonomic Functions of the Personality*. His aim is to formulate a physiological theory of the doctrine of the Freudian wish, and he feels that the researches of Sherrington, Cannon, Pavlow, von Bechterew and Watson have placed the psychologist in a position to make such an attempt. The attempt is a most ambitious one, and there is but little doubt that a large number of neurologists and psychologists will regard it as altogether premature in the present state of our knowledge of the physiological basis of

thought. On the whole, however, the theory which Kempf erects may be regarded as a commendable effort to explain human reactions in terms of the whole organism, though his persistence in endeavouring to localise instinctive cravings in physiological segments is going much further than the facts would seem to warrant. Kempf's views of insanity are not, however, strictly dependent upon his physiological theory of personality—indeed, in a measure he would seem to have invented a physiological scheme to fit his psychology—and they could have been expressed equally well in ordinary psycho-biologic terms.

For the purpose of this review, therefore, and without in any way minimising the author's zealous attempt to conceive behaviour physiologically, his general psychiatric outlook may be more particularly referred to.

At the outset Kempf discusses the "family romance" of the psychoanalysts. On the early environmental influences in childhood he places the greatest stress. "Because," he writes, "the autonomic affective cravings, in the child, always become conditioned through influence of associates, particularly the adults of the family, and each experience conditions the affections so that they determine the adjustment to the next experience; it becomes necessary to study the family wherever a psycho-pathological disposition is met with in an individual." The study of the affective reactions in a number of psychopathic families has convinced Kempf that the assumptions of "defective heredity" or "constitutional inferiority" in such cases reacts on extremely flimsy grounds. He seems, indeed, to almost reject the notion of heredity as a causal factor in the production of the psychoses; he finds, rather, that successive generations of children in certain families have been submitted to parental influences of such a kind as to produce morbid repressions of the affective functions, and a succession of neuropaths has thereby been created. He has observed children with "excellent functional capacities, but the personal influence of the affectively distorted parents distorts the affective requirements of the child, and this mechanism, plus the insidious censorship of society imposed upon those who have insane relatives, may cause miserable maladjustments in post-adolescence and maturity, particularly if other personal inferiorities exist, such as auto-eroticism." It is thus suggested that many psychopathic conditions are created by environment, and though this view is here supported by a number of case-histories, there are, unfortunately, too many facts leading to a contrary view for such an opinion to be readily accepted. If it were true, many forms of insanity would theoretically be preventable, and it is of course possible that the factors to which Kempf draws attention play a larger part in the production of the psychoses than is generally recognised.

The question of environment is essential to Kempf's psychology; he urges the point almost passionately, and summarily dismisses the hereditary factor as academic. He is too alive and eager to concern himself with influences which cannot be controlled; he is a social reformer on particularly broad lines, and almost obsessed by the problem of sex in relation to modern civilisation. He sees humanity engaged in the universal struggle for virility, goodness and happiness—all defined in his own fashion—and in so far as these aims are not

attained the neuro- or psychopath results. "Only those individuals biologically adjusted," he writes, "whose sexual affections are so conditioned that, in their striving for gratification, they reinforce the ego's struggle for social esteem." And modern civilisation he finds opposed to the attainment of this desirable biological adjustment; American educational and social tendencies have a castrating influence, and "out of the biological chaos of commercialised, loveless marriages and sterilised ideals are produced the insane and the criminal." Briefly, then, Kempf regards insanity as the reaction to persistent and uncontrollable autonomic cravings—oral, anal, incestuous, homosexual or auto-erotic—which conflict with the cravings of the ego for social esteem. Either because of the vigour of these perverse cravings, or the weakness of the opposing forces of the ego, or fatigue, disappointment, toxins, etc., the individual gives up the struggle, and the sexual craving dominates the personality. From this biological standpoint Kempf erects a dynamic-interpretative conception of the psychoses, and the book is largely concerned with full and elaborately worked-out cases exhibiting the various mechanisms which occur, and which give the psychoses their various clinical forms. The attitude here taken enables the author to suggest a new basis of classification. He rejects the usual grouping, emphasising symptoms and prognosis, and considers it much more practical to use a system of classifying psychopaths according to the nature of their autonomic-affective difficulties and their attitudes towards them, because this keeps the dynamic factors directly in psychiatric attention and permits of revision as the cases change."

The book as a whole is extremely revolutionary, and it will inevitably provoke a good deal of criticism. Some psychiatrists will no doubt reject the views of the author *in toto*. Insanity is much too complex a condition to be explained with assurance from one point of view, and the book would have been all the more convincing if the author had been content to suggest possibilities rather than to formulate sweeping generalisations. Though, however, an attitude of reserve may be taken towards his theories, it is certain that he has made contributions of practical value to the psychology of insanity. In one place Kempf observes with truth that "the controversial method never does sufficient justice to the other student of human behaviour," and if the book is approached in this spirit it will be found most stimulating and helpful. Kempf has described with considerable skill what is undoubtedly the psychological situation in many cases of insanity. An asylum physician who fails to observe the influence of sexual cravings in the determination of many psychoses must be shutting his eyes to the obvious. Our asylums, for instance, are full of cases whose symptoms are perfectly explicable as reactions to homosexual impulses, and it is possible that if biological deviations are recognised sufficiently early, much may be done to promote a beneficial adjustment to such inferiorities as may exist. Forsyth has published a case which lends colour to such a view (1). There is much, then, in Kempf's explanations of insanity, though he neglects factors which cannot be lightly or profitably ignored. He has emphasised, furthermore, that much may be done for asylum patients by an increased endeavour to understand them psychologically.

As Bleuler and Jung have shown, the insane are very sensitive to atmosphere, and we believe, from personal observation, that some cases regress into permanent turbulence because their emotional attitude is insufficiently understood. Why do some nurses appear to have a definite vocation for dealing with the insane, while others, though anxious to help, are more or less unsuccessful? Why does a patient dislike one doctor and confide in another? Why do visits produce relapses in some cases and promote recovery in others? Kempf endeavours to answer questions such as these; and in so doing he renders a service to psychiatry by emphasising the pragmatic value of approaching the insane as persons rather than as diseases.

H. DEVINE.

(1) Forsyth, David.—“Psycho-analysis of a Case of Early Paranoid Dementia,” *Proc. Roy. Soc. Med.*, Section of Psychiatry, vol. xiii, No 9.

Therapeutic Immunisation in Asylum and General Practice. By W. FORD ROBERTSON, M.D., Pathologist to the Scottish Asylums. Edinburgh: E. & S. Livingstone, 1921. Demy 8vo. Pp. vii + 278. Price 15s. net.

The views of Dr. Ford Robertson as to the importance of infections in the causation of mental disorder are well known to readers of this Journal. In this volume he deals with therapeutic immunisation in its wider aspects as applied to medicine and surgery generally, and does not deal very exhaustively with infections in relation to insanity. A great deal of the book is concerned with practical details of bacteriological technique and the preparation of vaccines. The author is an ardent advocate of the claims of bacteriology, and he feels that the medical profession, as a whole, has failed to utilise therapeutic immunisation to the extent which it deserves. He here endeavours to give a systematic account of all that pertains to this mode of therapy, and includes what he regards as most valuable in the work of others as well as his own personal researches. On the whole the author differs a good deal in his views from those generally held, and, as he himself writes, “many heterodox opinions are expressed that are not likely to be accepted without a fight.”

Dr. Ford Robertson’s researches have led him to the view that bacterial infections are responsible for a greater number of diseases than is generally supposed. His theories of the bacterial causation of nervous disorders are perhaps of most interest to the psychiatrist, and may here be referred to more particularly. He would seem to attach special significance to the pathogenic influence of infection of the intestine or genito-urinary tract by anaërobic diphtheroid bacilli, and these he regards as having chiefly a neurotoxic action, which manifests its effects in the production of a variety of nervous disorders. Amongst these he includes disseminated sclerosis, exophthalmic goitre, tabes dorsalis, general paralysis, neurasthenia, psychasthenia, acute insanities, manic-depressive insanity, and dementia praecox. He admits the almost constant association of syphilis and tabes and general paralysis, but advances the theory that in the former the cerebral vessels have been damaged by local infection in such a way that they have been rendered,

in places, permeable by bacteria circulating in the blood. Such views are not supported by therapeutic results from treatment with autogenous vaccines in the case of general paralysis, though the author reports improvement in tabes from this form of treatment. He also records successes in other forms of insanity and nervous disorders.

These views will naturally be read with interest by psychiatrists ; it would be most satisfactory to feel that the bacteriologist was in a position to supply curative remedies for insane cases. It must be confessed that the possibilities of direct therapeutic approach, based upon the pathological conditions, are somewhat limited in the sphere of mental disorder as manifested in our asylum cases. Skilled nursing, a suitable atmosphere, an understanding attitude and general medical treatment are the measures upon which reliance has to be placed in order to further a process of readjustment. Fortunately this often occurs, though by a process the exact nature of which is not thoroughly understood. It is probably true to say that the psychiatrist is able to do as much for his insane cases as the general physician is for his cases of pneumonia.

In view of our therapeutic limitations, therefore, the discovery of a specific remedy for insanity would indeed be an achievement of the greatest magnitude, but as to whether such a remedy will be found along the lines in regard to which Dr. Ford Robertson writes so hopefully there will necessarily be a considerable divergence of opinion. It cannot be said that the views expressed in this book are altogether convincing, and they will undoubtedly meet with considerable criticism both from the bacteriologist and the clinician. While the author has rendered a service to psychiatry in stressing an aspect of mental disorder which cannot be neglected, his theories would seem to require a good deal of confirmation by other observers before they could be expected to gain general acceptance. The unbiassed reader may perhaps feel that the author tends to over-emphasise the bacterial causation of insanity, and to dismiss too lightly other aspects of the subject. The latter tendency is particularly noticeable in his rather slighting references to recent work on the pathology of dementia praecox.

H. DEVINE.

Examen des Aliénés, Nouvelles Méthodes Biologiques et Cliniques. By ANDRÉ BARBÉ. Preface by J. SÉGLAS. Paris : Masson et Cie, 1921. Demy 8vo. Pp. xiv + 178. Price 8 frs.

Any suggestions which might lead to the establishment of psychiatry on a surer basis should meet with our whole hearted approval and support. Especially is this so at the present time, when public prejudice against asylums and asylum methods is rife. There is, unfortunately, a tendency for each new text-book on the subject of insanity to be more or less a repetition of the last which found its way into print, though it is true that a certain amount of colour may be imparted by the addition of the author's own personal views and opinions. The danger of this state of things lies in the fact that we may be deceived into imagining that psychiatry has already reached a state of perfection, and that in consequence nothing further remains to be done. This danger was apparently realised by Lugano, who some years since wrote

a book,¹ in which he indicated certain problems which have to be solved, and the lines along which future research would have to be conducted in order that psychiatry might be classed among the sciences and occupy its proper position in general medicine.

The present volume affords an excellent opportunity of seeing how far the programme suggested by Lugano has been followed. Dr. Barbé points out that during the last few years the progress made in laboratory methods, and more especially in biological methods, has been such that it has been found possible to trace many mental troubles to their true origin, and to confirm the view that the intellectual functions are frequently dependent on or modified by other functions of the organism. Numerous observers have been carrying on their investigations independently of one another, and the conclusions reached have been published from time to time in the form of articles in the scientific journals of different countries.

In "New Methods of Examination of the Insane" the author has collected and summarised many of the more important of these findings, with the result that he has been able to produce a book which is both clear and practical. Successive chapters deal with the nervous system, the cerebro-spinal fluid, the circulation, the blood, the urinary system, the respiratory and the digestive systems, the skeleton, the glands of internal secretion, intoxications and infections. Though the greater part of the work is devoted to laboratory methods, yet the more recent advances made in clinical examination receive due attention; and it should be noted that the chapter on the nervous system includes a *résumé* of the psycho-analytic method of mental exploration. As many as fifty pages are devoted to the consideration of the cerebro-spinal fluid, the study of which, the author affirms, has become of considerable importance. "The examination of the cerebro-spinal fluid not only gives us information as to the state of the nervous system, but it will often enable us to trace the relationship which exists between the nervous symptoms and disorders of the viscera."

Dr. Barbé maintains that the clinical study of mental affections has remained stationary for want of definite data upon which to establish a classification of the psychoses; and though he readily admits that the new methods which he describes are far from solving many of the problems which have arisen, nevertheless he claims that they have helped to explain the rôle played by humoral modifications, infections, and intoxications in the pathogenesis of mental disorders. He suggests that these methods, provided they stand the test of time and of future researches, might form the basis of a rational classification.

Perhaps no more opportune moment could have been chosen for the publication of this useful little book, of which one of the most important features is its excellent and exhaustive bibliography.

NORMAN R. PHILLIPS.

¹ *Modern Problems in Psychiatry*. By Ernesto Lugano. English translation, 1909.

Part III.—Epitome of Current Literature.

I. Psychology.

The Psychological Foundations of Belief in Spirits. (Proc. of the Society for Psychical Research, May, 1920.) Jung, C. G.

Belief in invisibles, ethereal beings influencing man, was never entirely suppressed among the masses, and has revived recently among scientific investigators. Jung describes how primitive man, with his complete dependence on nature, was delivered from bondage to sensationalism by naïve belief in and awe of the spiritual. The concrete and spiritual worlds were equally real to him and their laws equally inviolable.

He discusses, as grounds for belief in spirits, the phenomena of apparitions, dreams, and pathological disorders of the psyche, such as hysteria (in connection with which he alludes to parental influence and ancestor worship), and the hallucinations of dementia praecox. The primitive accepted these as genuine manifestations of the spirits of the dead, the souls of the living or elemental non-human demons. To the modern materialist they are either trivial or morbid.

Psychologists of Jung's school regard the "psyche" as divisible into fragments or "complexes," of which the "ego-complex" is but one. Dreams, visions, hallucinations, and delusions are caused by autonomous complexes from the unconscious, which appear as projections from the exterior because they are not associated with the conscious ego and may be antagonistic to it. Certain experiences of St. Paul illustrate the mode of action of conflicting complexes which cannot occupy consciousness together. Hidden complexes behave like independent beings disturbing consciousness. The association experiment to reveal their existence and properties is described.

The writer expounds his view that the unconscious is divided into two spheres—the personal and collective—and connects this with the primitive discrimination between souls and spirits. The *personal unconscious* contains psychic material forgotten, of subliminal energy, or that which has been repressed owing to incompatibility with the conscious attitude. The ego gains psychic energy when complexes from the personal unconscious enter consciousness, and is impoverished by their dissociation and repression. Similarly the primitive believed in a plurality of souls, of which the loss of one caused ill-health. The *super personal or collective unconscious* contains the "congenital instincts and primordial forms of apprehension" which are inherited by all mankind or by all members of a group. It gives rise, for example, to mythological imagery and symbolism in dreams and in mental disorders. The association of complexes from this sphere with the conscious ego feels strange, supernatural, often dangerous, as are the "spirits of the dead" which "haunt" primitive man, and their removal from consciousness gives relief.

Animation of the *collective unconscious* results either from external conditions or accumulation of internal energy, and may alter individuals

or nations, although rationalisation disguises the source of the change. History shows resulting national upheaval, such as the replacement of conscious reality by violent desires and fantasies : or resulting gradual development of a new, idealistic, psychological attitude. Beneficent or harmful, it is always somewhat disturbing and beyond man's grasp, and behaves like spirits or "ghosts from the world of shadows." The primitive sorcerer resembles the intuitive genius who translates the collective unconscious into mythology, art, language or ideas.

"Spirits of the dead" may be psychologically created when attachment to a person is, after death, transferred to his image with associated psychic energy that is thus lost to the work of life. The vitalised image forms a harmful spirit.

Finally, Jung explains that in treating the subject scientifically he leaves the question of the concrete reality of spirits open.

MARJORIE E. FRANKLIN.

Intelligence Tests. (The Child, June, 1921.) Watts, F.

This paper is an inquiry into the value of mental tests based on a historical résumé: (1) The early investigators sought to devise a single test which would measure innate capacity apart from acquired modifications. Sensory discrimination was, under the influence of Galton, first studied, and subsequently each of the supposed elementary mental functions. Apparatus was constructed and a useful technique developed. (2) Binet realised that no single test can adequately measure a personality, and that, intelligence implying a capacity for making new adjustments, the subject's stock of "common knowledge" and "every-day experience" should be investigated. His series of tests was standardised according to the average performance of children of different ages. The author discusses their merits and demerits, and concludes that in the main, especially in improved form, these tests have been justified in practice. The fractional method of scoring of the "point scale" systems is better, but the choice of tests inferior. The various "performance" tests are useful in cases where Binet's more generally valuable language and ideation tests might be misleading. (3) As regards later tests (post-Binet period), with more or less agreement on principles, there is divergence in their application. The author examines the "alpha" tests of the U.S.A. army, which he considers the best attempt to measure intellectual capacity apart from attainment, but shows that they are more influenced by environment than their sponsors admit. Important points are the undue favouring of those accustomed to rapid arithmetical calculations and to dealing with words and abstract relations rather than with concrete realities. The results of 2,000,000 recruits tested show that such occupations as accountant or clerk grade higher than, e.g., sculptor, electrician or skilled artisan. The author raises several questions—for example, whether the same tests are suitable for individuals of different training; whether intelligence tests must be speed tests, and if so, whether practice should be allowed; how far to generalise from particular performances. He concludes that "general intelligence" in adults is, like "bare native capacity," a mythical conception. What is obtained by the "alpha" and the "graded reasoning" tests of Cyril Burt is a

useful rough estimate of intellectual ability which is but one, though an important, form of intelligence. An example is given of one who, though testing low, obtained academic honours by means of the exceptional specialised intuition and sympathy which he possessed. A wide range of intellectual tests should be supplemented by tests for specific intelligence to demonstrate strength and weaknesses in particular directions.

MARJORIE E. FRANKLIN.

2. Neurology.

Lethargic Encephalitis with Myoclonus and Bulbar Attacks [Encéphalite épidémique asthénique et myoclonique avec crises bulbares. Evolution continue depuis plus d'un an.] (Ann. Méd.-Psychol., No. 2, February, 1921.) Leroy, R., et Dupouy, R.

The authors describe the case of a man, æt. 50, of great intelligence, who became ill in January, 1920. The illness started with insomnia for two nights, then symptoms suggesting influenza (which his family were suffering from at that time), fever, generalised stiffness in the joints, pulmonary congestion; he also had somnolence, it being necessary to shake him to wake him up; he was able with difficulty to answer questions and take food. The memory of the first fortnight was blurred. Shortly after myoclonic spasms occurred all over the body except the face, then diplopia (which lasted about six weeks), and ptosis in the left eye. About the middle of February the patient tried to take up his work again, hoping to rouse himself from the torpor, but he was unable to continue, going to sleep as he was walking and falling to the ground. In March he slept most of the time, had stiffness of the limbs, and especially dragged the left leg. In April he became better and was able to take short walks. At the end of April he developed a mucopurulent discharge from the nose: shortly after he had a febrile attack with congestion of the lungs and enteritis; this slowly improved. Towards the end of June he was rather better but continually fatigued; he developed marked nocturnal polyuria, passing large quantities of almost colourless urine. This ceased later and he improved somewhat, but in October he relapsed, became more torpid, attacks of shivering, pains in the limbs, and respiratory symptoms with Cheyne-Stokes breathing. He was admitted into a *Maison de Santé* in November. Wassermann reaction was negative and cerebrospinal fluid contained no albumen and showed no lymphocytosis. The mucopurulent nasal discharge persisted; he still had myoclonic attacks and bulbar symptoms.

The authors draw special attention to the nasal discharge, and suggest that possibly the path of entry of the infection is *via* the nasal fossæ, thus reaching the region of the infundibulum and the floor of the third ventricle, and that therapeutic measures might be directed at the early stages of the malady towards disinfecting these fossæ.

L. H. WOOTTON.

Cerebellar Fits. (Arch. of Nerv. and Psychiat., March, 1921.) MacRobert, R. G., and Feiner, L.

The paper is based on seizures occurring in a series of forty-five cases of subtentorial tumour, of which twenty-three were cerebellar tumour,

six tumour of pons and medulla, and sixteen of the cerebello-pontine angle.

It has been demonstrated experimentally that ablation of part of the cerebellum may be followed by peculiar forced movements of the limbs and body; Horsley concluded from his observations that the activity of nerve centres is "translated" by a combination of clonus and tonus factors, the resultant motor manifestations differing according to the proportion of one or other of these factors; clonicity is the property of the cerebral cortex, and tonicity of the lower centres. Hughlings Jackson, in agreement with this, believed that (1) cerebellar convulsions showed tonic spasm, cerebral convulsions principally clonic; (2) cerebellar attacks affect more the bilateral muscles of leg and trunk, whereas in cerebral affections one side is involved more than the other, and the arm more than the leg; and (3) cerebellar crises resemble tetanus more than epilepsy.

In the authors' series of cases only nine showed phenomena which could be included under the caption of "fits." One case presented attacks of major cerebellar seizures with general rigidity and opisthotonus, both arms being flexed and raised, lower limbs extended and toes pointed. Retraction of the head and rigidity of the masseters commonly accompany this in subtentorial inflammation, but are rare in cases of tumour. Four cases had attacks of tonic spasm and forced movement, similar in a measure to the forced movements which follow experimental ablation of parts of the cerebellum; these cases had attacks of homolateral rigidity of an extremity with irregular spasmodic jerking movements which were quite unlike a Jacksonian fit, being aimless, stiff jerks with no local point of commencement, without gradual spread, and were not rhythmic or clonic in character.

Four cases had cranial nerve attacks, two due to interference with the vagus, the others to irritation of the facial nerve. The former had speech and swallowing difficulties, with periodic choking sensations and respiratory embarrassment; these may become paroxysms of extreme and agonising type (cerebellar crises of Cushing). The facial attacks were shown by homolateral facial twitchings, not Jacksonian in type, and more like a convulsive tic than an epileptiform attack. None of the cases showed generalised or Jacksonian convulsions, though these may occur as a late symptom due to disturbance of other areas of the brain.

The authors conclude that convulsive attacks are rare phenomena of cerebellar tumour, and that they can be differentiated from the cerebral attacks by their being of a tonic rather than a clonic type, and that Jacksonian fits can be distinguished by the deliberate, progressive, clonic character of the spasms.

L. H. WOOTTON.

3. Clinical Psychiatry.

*Reaction in Dementia Praecox to Vagotonic and Sympathicotonic Criteria.
(Amer. Journ. Ins., April, 1921.) Raphael, T.*

The cardinal criteria selected were for vagotonia exaggerated reaction to pilocarpine, and positive response to the oculo-cardiac reflex; for sympathicotonia, the epinephrin, eserine, and oculo-cardiac reactions.

Eleven cases of dementia praecox, including simple, hebephrenic and catatonic cases, were tested. To pilocarpine ($\frac{1}{16}$ gr. hypodermically) all cases gave a normal reaction, viz., minimal perspiration and slight salivation. Eserine ($\frac{1}{4}$ gr. by hypodermic) produced no cardiac slowing, and was therefore negative.

The oculo-cardiac reflex was normal (retardation 4 to 12) in contrast to positive result (slowing over 12 for vagotonia, and retardation less than four for acceleration for sympatheticotonia). This test gave much variation and necessitated repeated trials. Epinephrin (1 mgrm. subcutaneously) produced no glycosuria nor the necessary acceleration of heart rate (one-third increase). On the contrary, the blood-sugar content in five cases was '71 per cent., falling below the average normal result '98 per cent., and negativating sympatheticotonia.

There was no positive evidence of either vagotonic or sympatheticotonic reaction.

JOHN GIFFORD.

The Frequency of Albuminuria with Casts in Epileptics following Convulsive Seizures. (Arch. of Neur. and Psychiat., November, 1920.) Novick, N.

There has been considerable variance in the findings of other observers. Munson found albumin and casts in 20 per cent. of cases following epileptic attacks. Other reports show absence or irregular occurrence of albumen; the presence of semen has been suggested as an explanation of its presence.

A series of sixty cases were examined. Albuminuria with granular casts was found in 66 per cent. after every attack, and in some cases persists for 24 to 48 hours. The duration of seizures has no relation to subsequent albuminuria, but frequency of convulsions tends to regular presence of abnormalities. Seminal fluid as a contaminant occurred in only 22·6 per cent., and is negligible as a cause of albumen. It can be differentiated by the presence of casts simultaneously. Incidentally glycosuria did not prove demonstrable, though all specimens were not examined. Two cases diagnosed clinically as hysteria with epileptiform seizures were uniformly negative on repeated examination. The question arises whether this might not be a factor of some differential diagnostic value.

JOHN GIFFORD.

The Intellectual Status of Patients with Paranoid Dementia Praecox. (Arch. of Neur. and Psychiat., March, 1921.) Rawlings, E.

This is an investigation to obtain the intellectual status of apparently well-preserved cases of paranoid dementia praecox. Out of fifty cases tested sixteen were taken, the others being rejected on account of delusional answers, inaccessibility, or negativism. They had all received a good education, and showed fair or apparently normal intellectual preservation; they were all men.

Their general intelligence was investigated by the revised Yerkes-Bridges point scale test. They showed an average of 72 points and a mental age of 16·9 years compared with Yerkes' male mill operatives, who averaged 88·3 points and 14 years. The praecox cases were particularly poor at the tests involving memory. With the Kent-Rosanoff test for uncontrolled association they more nearly approached

the norms for children under 11 years of age, and they had fewer common, more doubtful, and many more individual associations than normal people. Other tests were also undertaken with a view to testing the higher intellectual levels, e.g., controlled association tests, theme development, and Ebbinghaus' test; lastly, questions were asked in geography, history and arithmetic.

The author found "an impairment of the faculties of the mind, involving not only volition and emotion, but also the higher intellectual faculties of memory and the power of reasoning and the acquired capabilities. The disease process as a rule began insidiously with a progressive lowering of the intellectual levels, producing a gradual loosening of the train of thought with a resultant incoherence and disconnection; a deterioration in judgment, as shown in the patient's inability to order his life consistently from an environmental standpoint, and the presence of more or less automatic or reflex activities, which took the place of conscious purposeful action based on an intact psychic mechanism."

In a previous paper the author had described "singular fragmentation of the stellate nerve-cell stratum" in brains of *præcox* cases. Ariëus Kappers believes this to be an intra-hemispherical and short associative layer, and Van't Hoog suggests that it may be a matrix cell-layer, capable of differentiation into cells of the more highly differentiated supra-granular pyramids, and the paper concludes with the suggestion that in the destruction or exhaustion of this cell-layer we have the beginning break in the connection with the lower cortico-fugal cells, with disturbances of the sensorimotor reflexes producing emotional and volitional aberrations, and the decline in psychic life is hastened by a continuance of disordered metabolisms, with its toxins diffusely attacking the nerve-cells of the upper cortical layers, rendered more liable to destruction by the cutting off of their reflex sensory stimulation.

L. H. WOOTTON.

Cranial Injuries and Korsakoff's Psychosis [Traumatismes crâniens et psychose de Korsakoff]. (Arch. Suisses de Neur. et de Psychiat., vol. vii, Fas. 2, 1920.) Benon, R., and Lehuche, R.

The authors describe a case in a corporal, æt. 28, who had a bicycle accident on May 27th, 1916. From June 12th to July 14th, 1916, he had the following symptoms: Complete anterograde amnesia of fixation; very active fabulation; false remembrances; euphoria, intellectual excitation, headache; some illusions. From July to August, 1916, there was rapid amelioration, and he was reported cured of the psychosis, but his head felt always heavy, he complained of buzzing in the ears, he could not resume his previous occupation; his memory was not so good; one could not contradict him. Otherwise he was well. These symptoms were ascribed to asthenia.

It is important to separate the syndrome of Korsakoff from mental confusion proper. If one admits that Korsakoff's psychosis is a form of confusion, that form merits a special description. Confusion is essentially characterised by profound troubles of perception, of recognition of places, persons and things, disorientation, aprosexia, etc. The confused

person is not hallucinated, nor delirious, nor asthenic ; unconscious of his state, he shows a very disorderly activity. The characteristic signs of the syndrome of Korsakoff are amnesia of fixation, confabulation, false recognitions, euphoria, intellectual excitement, etc.

The syndrome of Korsakoff is different from hallucinatory delirium. In principle hallucinations are absent in Korsakoff psychosis ; when they exist they are complications. In hallucinatory delirium the patient is anxious, not euphoric ; he shows no amnesia of fixation, no fabulation, no false recognitions.

One should hardly confound the syndrome of Korsakoff with an asthenic syndrome. There the fixation amnesia is less marked, confusion in ideas here—confusion of ideas, not confusion of perceptions—could give rise to troubles of recognition, but these are very slight and quite different from those shown in Korsakoff's psychosis.

What rôle do intoxications, specially alcohol, play ? The majority of cases of post-traumatic Korsakoff's psychoses develop in alcoholic subjects. Is alcohol a predisposing cause, traumatism an occasional cause ? What is the direct determining cause ? It is also possible that infectious elements intervene to indicate the malady, especially if there is a wound of the head or body.

The authors conclude that Korsakoff's psychosis develops fairly frequently after head injuries, though this has not often been referred to by authors. This is explained by the fact that this psychosis is considered as a clinical variety of mental confusion. Yet even admitting a common origin, it is a fact that these two syndromes differ clearly in their symptoms. The amnesia of fixation, the fabulation, the paragnosia, and the euphoria especially characterise the psychosis of Korsakoff. This should be distinguished from hallucinatory delirium and psychical asthenia. Amongst the traumatic psychoses, has that of Korsakoff an origin that is toxic or of an infectious nature ? What is the part played by the trauma ? These points are obscure. It appears to the authors possible to consider Korsakoff's psychosis as a malady of memories as much as that confusion is derived from alterations of perceptions, of sensations in general.

W. J. A. ERSKINE.

Intellectual and Criminal Precocity in a German Child [Précocité intellectuelle et délinquante chez un enfant allemand]. (L'Encéphale, June and July, 1920.) Courbon, Paul.

Juvenile rogues hunt mostly in gangs, and confine their depredations to within sound of their own church clock. If one of them ventures on a long expedition, it is prompted by the reading of romantic fiction ; at the touch of reality his dream fades, and loneliness and helplessness soon turn his footsteps home. Not so with this twelve-year-old, who wandered away alone for hundreds of miles and into an enemy country, on no romantic impulse, but from a reasoned judgment on international economics.

His father, a miner at Königshütte, in Upper Silesia, had died in the war, and the mother, with her four small children, had since lived miserably by begging. Then, when the Armistice came, and people around him were saying that there would be no food in Germany or

Russia, but that the victorious allies had plenty, this boy, who had had no schooling since the commencement of hostilities, set out, without a word to anyone, for Alsace, where his German speech would not hinder him from profiting by the abundance of good things. Travelling sometimes on foot, pilfering as he went, and sometimes by rail, having clambered into a carriage or truck from the off-side of the train, and stopping at intervals for a few days in some town, to thieve or earn a little money by odd jobs, he reached, after some weeks, the occupied territory. There he enlisted the sympathy of soldiers of the allied troops, who, ignorant of German, could not embarrass him with awkward questions, and giving them to understand that he wanted to go back to his mammy in Alsace, he obtained from them gifts of food and a lift in an army lorry. He established his headquarters at the railway station at Strasbourg and tried to make a living as errand-boy or porter. It was hard to compete with the boys of the place, who, observing his foreign accent, made a butt of him; and few travellers would entrust their baggage to a child so small. He would do better at home; food might be dearer there, but with his experience no greater industry would be needed to obtain it. One May morning (1919) the police at Sarrebrück, of whom he asked the way to the Rhine, were curious, seeing that he had no pack, to know where he had got that bicycle, so much too big for him. He told them he had found it standing outside a house in Strasbourg a few days before, and had taken it in order to get back to his own country. Convicted of the theft, he was sent to a reformatory at Haguenau, where he behaved well, worked hard at his lessons, and applied himself diligently to learning French. After about four months he escaped and was away for twelve days. He had imagined that he could effect an entrance to his fatherland most easily through Switzerland, but finding at the Swiss frontier that the obstacles there were insuperable he had made his way to Strasbourg, and here his institution dress was recognised. Two months later, however, he escaped again and was traced only as far as Speyer.

So he disappears into his native Germany. If there is nothing better in store for him, at least he has all the qualities for the making of a captain of industry or a cosmopolitan financier. Heedless of social and family ties, and having no moral sense, he well knows how to exploit the moral sense of his fellows.

SYDNEY J. COLE.

A Case of Puerilism [Un cas de puérilisme.] (Bull. de la Soc. Clin. de Méd. Ment., April, 1920.) Truelle and Brousseau.

A tailoress, aet. 35, who had long appeared odd and been prone to suspicions, to fanciful likes and dislikes, and to sudden groundless changes of mind, was admitted to Ville-Evrard Asylum in June, 1917, in a state of acute excitement in which she expressed vague erotic and mystical ideas, sang hymns, would keep no clothes on, lay on the ground and was impulsively violent. Early in 1918 she lapsed into mutism, broken only by occasional revilings of the medical officer; her generally hostile demeanour betokened some systematised delusion. In the spring of 1919 her violent propensity abated, there was a

marked rise in body-weight, and she began to display her present childishness.

She smirks, gives little shouts of delight, claps her hands, and has little outbursts of temper like a spoilt child ; she toddles about with arms outstretched, swaying as if unsure of her feet ; she will sit on the ground for hours, arranging little pebbles about her ; she seldom speaks, and then only in baby talk, with a lisp. But the picture of babyishness she presents has certain inconsistencies : if she eats unsuitable things, such as fallen leaves, she carefully washes them first, like an older child who plays housewife. In several respects her behaviour differs from that of any child ; she shows none of the child's inventiveness in her play, none of the child's coquetry, none of the child's favouritism towards particular persons ; her way of collecting stones and bits of wood is a dement's way ; and as regards matters sexual, though she exhibits an infant's immodesty, and though she treats her husband with indifference, seeming to care only for the eatables he brings her, yet when she hears another woman propose to make conquest of him she objects bluntly, saying he is hers.

Her childishness is simply a mannerism of dementia *præcox*, such as might later be exchanged for some other mannerism having no childish quality. Its distinction from the affected childishness of an hysterical may perhaps be somewhat nice, but the childishness in this woman's case is evidently quite different from that of senile dementia, in which the principle of regression operates, or of severe shell-shock, where an amnesia, stripping the civilised adult of his social acquisitions, leaves only infantile activities. Her childishness is not a bare state of mind, but an assumed garb.

SYDNEY J. COLE.

4. Treatment of Insanity.

La Phényléthylmalonylurée (Gardénal, Luminal) dans le Traitement de l'Epilepsie. Bergès, Gaston.

This substance, first obtained by Hörlein, and best known by its German name "luminal," is akin to veronal, from which it differs in the substitution of a phenol group for one of the two ethyl groups. It is a crystalline solid, melting at 172° C., and is almost insoluble in water, but soluble in alkaline solutions (forming a sodium salt, which can be isolated) ; from such solutions it is precipitated by addition of hydrochloric or acetic acid. It was first studied pharmacologically in 1912 by Impens, and in the same year Kino published some remarkable results obtained with it in epilepsy. It soon attracted considerable attention in Germany, and was beginning to be noticed in other countries when the war put a stop to research.

The drug is best given by the mouth, either in cachets or in the form of tablets, which should be crushed. It has a bitter but not disagreeable taste. It should be taken on an empty stomach or between meals, and accompanied by some hot beverage. The daily quantity for an adult is from 20 to 30 cgrm., which should be divided into two or three doses. Hypodermic administration is unsatisfactory and uncertain in

its results, for it necessitates the use of the sodium salt, which is exceedingly prone to decompose and become inert.

The author of this brochure gives a glowing account of the action of luminal in epilepsy. At the commencement of the treatment the hypnotic effect of the drug is very marked, and after three or four days a condition of torpor may be produced, or in some cases excitement, whose appearance, however, if it occurs at all, may be delayed till the second week. After two or three weeks of the treatment the somnolence and other psychic disturbances disappear, while the therapeutic effect upon the epilepsy remains. The action of the drug in inhibiting the fits is very rapid ; within a day from the commencement of the treatment the fits cease, even in inveterate cases in which they have been habitually frequent. If, however, they continue to occur, the daily quantity of the drug is increased to 30 or even 40 cgrm., but the increased doses are not to be continued beyond two or three days if there is excitement. After their initial cessation the fits recur, if at all, only at long intervals and in a milder form. In the first six months of treatment, the average number of fits per month is about one-tenth of what it was before. In some cases major fits are reduced to minor fits, or to other epileptic equivalents, such as fugues ; these modifications are generally favourable unless, as exceptionally happens, occasional major fits are superseded by frequent minor fits. Attacks of *petit mal* are usually inhibited like major fits, but upon those the effect is less clear and often less rapid. In some of the cases of traumatic and Jacksonian epilepsies in which the drug has been tried good results have been obtained ; but the cases in which the benefit is most striking are the cases of genuine epilepsy with frequent typical major fits, in which bromide has proved ineffective.

Luminal is said to have a beneficial influence also on the chronic mental troubles of epileptics. The mental retardation is diminished, the patient becomes brighter and more quick-witted, and his memory improves. He becomes less irritable. These good effects are most marked in children, but are observed also, though in less degree, in older and more chronic cases in which mental deterioration has been long in progress. The improvement is not due simply to disuse of bromide, for it occurs also in cases in which bromide has either not been used at all or has been abandoned long before the administration of luminal was begun. There is often also a physical improvement—an increase in body-weight and in appetite for food.

In the initial period of the treatment the drug sometimes provokes acute mental disturbances ; the convulsive attacks being restrained, the epilepsy finds a psychic manifestation in excitement, delirium or confusion ; and even long after the beginning of treatment there may be choleric outbursts and alterations of character and mood. Though the drug is evidently responsible for these phenomena its action is said to be only contributory, for they occur only in cases in which they have already occurred before the treatment was instituted. On the other hand, the drug seems often to prevent or mitigate such attacks in patients previously subject to them ; they become slighter and less frequent, but are more prone to recur than convulsive fits.

As the treatment is not curative but only symptomatic, it must be

continued for months or years. If for any reason it is to be discontinued, this must be done gradually; abrupt discontinuance almost invariably induces a grave general disturbance, with numerous fits, and sometimes status epilepticus. If, however, under treatment the patient has for many months shown no epileptic manifestations even of the slightest sort, it may be possible to reduce the daily 20 cgrm. to 10 cgrm.

In early stages of treatment the drug often causes a skin-eruption—a transient erythema, never serious—and occasionally vomiting. This, or a dangerous fall of blood-pressure and pulse-rate, may necessitate the reduction or abandonment of the drug. In severe chronic cardiovascular affections, in uncompensated heart disease, and in renal disease the drug is very decidedly contra-indicated. Several deaths have been reported which appeared to be due to it.

The author adds notes of seventy-five cases, observed personally or collected, and a bibliography of fifty-six items.

SYDNEY J. COLE.

*Analysis of more than 200 Cases of Epilepsy Treated with Luminal.
(Amer. Journ. Ins., April, 1921.) Kirk, C. C.*

In 1914 Dr. Richard Eager directed the attention of Dr. Dercum to the value of luminal in epilepsy. Luminal is pheno-barbital, and the addition of the phenyl group is claimed to advantageously increase the hypnotic power. Luminal in the cat or dog affords quiet sleep, rarely preceded by excitement. It lessens the frequency of breathing, but increases its volume. It is eliminated by the kidneys, and injury to these organs has not been observed. There is considerable range between effective and lethal doses. It kills by respiratory paralysis. The dose is 3 to 5 gr., if need be increased to but not exceeding a maximum of 12 gr. Luminal-sodium has a dosage 10 per cent. greater. It may be used hypodermically in 20 per cent. solution in distilled water. The hypodermic dose may be from 1½ to 5 gr.

In 1919, after lengthy trial, Dercum reported astonishing improvement even in old-standing epilepsies, and stated that luminal acted as a specific in idiopathic epilepsy, seizures being abolished for several years.

In December, 1919, Kirk adopted its use with reservation. The cases selected were those with frequent and profound seizures, some having been bed-ridden for months or years. Certain results were so amazing that within a month luminal was being administered to all cases of essential epilepsy, 1½ gr. in tablet at bedtime. Luminal-sodium appeared equally effective. In only five cases was the treatment varied, 1½ gr. night and morning, and in two instances the same dose three times a day. In all cases on improvement the doses were reduced to one at bedtime. Continuous treatment was persisted in for four to five months, when the stock of the preparation was exhausted; this was May 1st, 1920. During the month after cessation the number and strength of seizures were appreciably increased; but there had been no retrogression to the position prior to treatment.

All stimulants, tea, coffee, tobacco, were prohibited. The diet was unaltered except for closer supervision as to quantity. The secretion

of food by patients in their clothes proved a troublesome factor. The usual adjuncts, bowel elimination, occupation and fresh air were maintained. Serial seizures and status epilepticus were as usual combated by elimination and restricted diet, with luminal gr. v every three hours to the exclusion of the ordinary drugs.

No deleterious effects were produced. The drug is not habit-producing as there is neither pleasurable nor disagreeable sensation. In some cases the drug is effective in 24 or 48 hours, in others only after a week or more. Among 211 cases, while under treatment, 61 had no convulsions, 106 had less than 5, and only 45 had a larger number. Only 3 deaths occurred during this period, 1 from lobar-pneumonia, 1 from mitral regurgitation, and 1 from status epilepticus. The results were most gratifying, but it is necessary that some thousands of cases be treated over a period of years for final determination of its value.

JOHN GIFFORD.

5. Pathology.

A Study of Nissl's Stäbchenzellen in the Cerebral Cortex in General Paresis, Senile Dementia, Epilepsy, Glioma, Tuberculous Meningitis, and Delirium Tremens. (Four. Nerv. and Ment. Dis., March, 1921.) Noda, U.

When Nissl, in 1899, first called attention to these rod-cells, he believed them to be glial; but in 1904 both he and Alzheimer, in their celebrated works on the general paralytic cortex, rejected the notion of a glial origin for these cells and pronounced them mesoblastic, derived from the walls of the blood-vessels, an opinion in which these authors have been followed by Mott, Ranke, Dupré, Rosenthal, and Rondoni. A glial origin was first seriously maintained in 1905 by Cerletti, and afterwards by Sträussler, Agostini and Rossi, Ris, Perusini, Marchand, Torata Sano, Simchowicz, Fulier, and Uyematsu. Some observers—Achúcarro, Bonfiglio, Cerletti (1910), Martha Ulrich, Alzheimer (1912), Spielmeyer, and now Noda—have come to the conviction that rod-cells arise from both sources: that some are glia-cells but that others are derivatives of vessel-wall elements.

In this paper (56 pages, 10 illustrations), Noda reviews the literature, and reports his observations on rod-cells in 10 cases of general paralysis, 6 of senile dementia, 1 of epilepsy, 1 of delirium tremens, 1 of tuberculous meningitis, and 2 of glioma. He has been able to confirm almost all the grounds of argument in favour of a glial origin for rod-cells—the occurrence of various forms intermediate between glia-cells and rod-cells, the presence of rod-cells in the glial encapsulation of senile plaques and in glia-cell colonies, the occurrence of rod-shaped individuals among the glial satellites of the cortical nerve-cells, the parallelism between the number of rod-cells and that of proliferated glia cells, and the discovery of glia fibres attached to rod-cells. To these considerations he would add the presence of many rod-shaped glia-cells in his cases of glioma; such cells were found not only in the tumour, but widely distributed over the cortex. On the other hand, he believes he finds evidence that some rod-cells are proliferated vessel-wall

elements that have become actually or apparently detached in consequence of regressive changes. The fact that the regressive changes in the vessels of the cortex in general paralysis have been preceded by much proliferation of the cells of their walls, and by increase of capillaries, may help to explain why in this disease rod-cells are so numerous. In all Noda's paralytic cases they abounded. They were especially abundant in the pyramidal and ganglion cell layers of the frontal region and cornu Ammonis. In his case of tuberculous meningitis he says he observed migration of rod-cells into the outer layer of the cortex from the pia, but only where there was a pronounced pial infiltration. In his cases of senile dementia, epilepsy and delirium tremens few rod-cells were found.

He hazards guesses at the functions of these cells, and why they take this shape.

SYDNEY J. COLE.

The Aetiology of Bacillary Dysentery in Asylums. (Lancet, July 30th 1921.) Dawson, W. S., and Moody, W.

Dysentery is shown to cause about 3 per cent. of asylum deaths and much ill-health. The authors studied a series of cases of clinical dysentery and diarrhoea at Claybury Mental Hospital, from a number of which they cultivated a bacillus of the Flexner type of *B. dysenteriae*. Swabs were taken from faeces or rectal wall, and the specimens plated on McConkey's medium of exactly +4 acidity, incubated twenty-four hours, and for twelve on Russell's double sugar agar, then agglutinated for fifteen seconds with Flexner's serum. No results positive by this rapid method failed of confirmation by various more detailed tests used.

Contrary to some observers the authors found that agglutinins did not appear in the blood till after the fourth week, nor in any case with bacteriologically negative faeces.

At Claybury incidence of dysentery has been greatest in winter, suggesting direct contagion. The authors found the organism to reappear in the faeces after apparent cure in several cases of mild, transitory relapse, and therefore advocate permanent isolation of bacteriologically positive subjects.

MARJORIE E. FRANKLIN.

A Study of Some Peculiar Changes Found in the Axons and Dendrites of the Purkinje Cells. (Arch. of Neur. and Psychiat., March, 1921.) Uyematsu, S.

Peculiar balloon-like swellings of the dendrites of Purkinje cells were first described by Schaffer and others, who believed them to be pathognomonic of amaurotic family idiocy. Later Straussler found swellings on the axons and dendrites in a case of psychosis with cerebellar symptoms, and later still in juvenile general paralysis. Other observers noted the same phenomenon in other conditions, some considering it as a symptom of degeneration, others as a regenerative effort on the part of the cell.

The author used brains hardened in 14 per cent. formaldehyde solution, of which frozen sections were stained by the Bielschowsky

method. He investigated the changes in senile dementia, arteriosclerotic brain disease, general paralysis, congenital brain disease, dementia praecox, manic-depressive insanity, alcoholic and toxic psychoses, brain tumours and myxoedematous psychosis. Of these, swellings on the axons were found in 100 per cent, excepting in dementia praecox and manic-depressive insanity, in which the condition was not found at all. Swellings on the dendrites were found in a varying but smaller percentage in all except dementia praecox, manic-depressive insanity, brain tumours and myxoedema, in which the swellings appeared to be absent. He describes various forms of these swellings, e.g., spindle, pedunculated, bulb-like, etc., and he attempted to discover the contents by means of the staining reactions. Most stained diffusely, and contained some homogeneous argentophilic substance, some showed liquid content, a few had thickening of neurofibrils and whirl-like structures suggesting Alzheimer degeneration.

He concludes that these changes can no longer be considered as specific, but are encountered in cerebella wherever there is a chronic degenerative process. He discusses the question whether they are regenerative or degenerative, and believes that both the axonal and dendritic swellings are a feeble attempt at regeneration.

L. H. WOOTTON.

6. Sociology.

Kleptomania from the Medico-Legal Point of View [De la Kleptomanie au point de vue médico-legal]. (Ann. Méd.-psychol. No. 3, March, 1921). Wimmer, A.

The author mentions the conclusion of Marc that the more carefully cases of kleptomania are examined the more one is convinced that true kleptomania—i.e., an irresistible impulse towards theft for the sake of theft—is, if it exists, a pathological rarity. This the author thinks may be true in medico-legal practice, but in the psychiatric clinic it is common, and is one of the numerous mental stigmata of d---rates. He mentions the theory that the theft is a symptom of a repressed sexual wish symbolically satisfied, but considers this is only true probably for a small number of cases. He believes that in some cases it is due to an impulse of an organic nature latent behind the kleptomania, and which under the influence of certain disturbances—e.g., drunkenness, menstruation, pregnancy—is translated into action; he mentions the case of a young girl, æt. 18, “bonne et bonnête fille,” who had violent fits of hunger accompanying her impulses to thieve, and at these times she would steal eatables—cakes, chocolate, fruit, etc. If this patient’s troubles had been reviewed in the court of law rather than in the consulting room, he believes it could have been maintained that she was the victim of a morbid impulse to theft due to an unconscious organic change in her mental state. Many authors have noted the connection between sex and theft, and a distinction has to be drawn between those who thieve articles which give them sexual pleasure—fetichists, not true kleptomaniacs—and those in whom the theft itself produces a sexual orgasm. Of the latter, some recognise the nature of the pleasure, in others the sexual motive appears com-

pletely unrecognised by the patient. As examples of this group he refers to several published cases of women who were sexually frigid, but who experienced sexual sensations at the moment of theft. He mentions a woman who practised prostitution when young for the sake of gain, and later married a man because she "respected" him ; she had feeble sexual desires, and was generally frigid. During her pregnancies she experienced kleptomaniac impulses, which if repressed caused attacks of vomiting ; if she yielded she experienced an orgasm. The author considers she was a psychopath of emotional temperament in whom, during her pregnancies, the ordinary temperament was accentuated in a direction more decidedly pathological ; her kleptomania does not come in the category of obsessions according to the classic definition, but was a symptom of an organic disorder, and became the equivalent of a normal coitus ; he points out that kleptomaniacs which only show themselves during pregnancy suggest almost irrefutably their dependence on pathological causes. He cites the case of a woman of poor intelligence who was married and had two children ; during both the pregnancies she exhibited a depraved appetite, bit her nails, etc. Later she was in an accident, and was concussed, after which she became very nervous and anxious. When she became pregnant for the third time she did not develop her previous eccentric appetite, etc., but had impulses of kleptomania. He considers that her depraved appetite and nail-biting could be attributed to purely somatic alterations, and these were afterwards, during her third pregnancy, replaced by her kleptomania, and he believes that the thefts committed by this woman were due to a morbid impulse which she would not have been able to resist normally, precisely because it was due to an organic cause.

These observations give to kleptomania a different value than that of Marc ; but, on the other hand, one can use it with greater precision in the small number of medico-legal cases to which it is applicable.

L. H. WOOTTON.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE ADJOURNED EIGHTIETH ANNUAL MEETING was held on Tuesday, November 22nd, 1921, at the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, London, W., the President, Dr. C. Hubert Bond, C.B.E., F.R.C.P., in the chair.

THE NEW EDITION OF THE HANDBOOK FOR MENTAL NURSES.

Dr. BEDFORD PIERCE, Chairman of the Handbook Committee, reported that the new edition of the Handbook of Mental Nursing was now ready for the publishers. He explained that it had been arranged to correlate the Syllabus of Training and the Contents Table of the Handbook, and the first difficulty encountered by the Committee was that of deciding as to the scope of the work, and whether it would be possible to cover the whole ground properly in a single volume. After considerable discussion it was decided to continue on the former lines, though that would mean a serious limitation of the space allotted to anatomy, physiology and bodily diseases, as well as nursing details and other subjects. Great pains had been taken in writing the book; many articles had been written more than once, and some sections had been re-written three or four times. He felt free to speak of the labour involved as he had had nothing to do with the writing of the book; he had only seen what others had done. Frank criticism had been directed on all doubtful points, and when there was a doubtful point which needed a decision, the opinion of the Committee as a whole was taken. Therefore, the book now presented was not a volume in which one person had been responsible for one section and another person for another section, but the responsibility for the whole work was accepted by the Committee as a whole. The general aim of the book had been the development of the mental nurse, and although this book represented an advance on the previous one, every care had been taken to explain technical matters and put them into plain language, so as to make them intelligible and clear to the thoughtful nurse. No attempt, however, had been made to write the book down to suit the careless and the illiterate. In its compilation the Committee had received valuable assistance by experts. Dr. Sherlock wrote a long and excellent chapter on Mental Deficiency, so that the book covered what was required by the Association for the Certificate in Mental Deficiency. Prof. Pear, of Manchester, helped in regard to the portion dealing with the Mind in Health. The article he sent was not adopted in its entirety by the Committee, but what he contributed was used by the member of the Committee who dealt with this very difficult subject. Miss Corke had revised the chapter on Sick Nursing as it was felt desirable that an experienced woman nurse should help on that subject. Considerable help had also been given from a literary point of view, in the simplification of language, etc., by Miss Kendal, of York. The book had now been placed on the table, and was ready for final editing. The Committee therefore asked the Association if they would be willing to re-appoint the Committee, and empower it to print and publish the volume. They also asked for sanction to expend £75, £25 of which was to be given to Miss Kendal, £25 to the Medical Editor recommended by the Publishers, and £25 for typing. He hoped the labours of the Handbook Committee would be approved by the Association.

Dr. G. WARWICK SMITH said he had very little to add to Dr. Bedford Pierce's remarks. Perhaps, however, members would be interested in being reminded of the composition of the Committee. Its fourteen members consisted of:

England: Drs. Bedford Pierce, W. F. Menzies, J. Middlemass, F. R. P. Taylor, W. Daniel, W. Rees Thomas, G. W. B. James, G. W. Smith, O. P. Napier Pearn.

Scotland: Drs. T. C. Mackenzie, Donald Ross, H. Yellowlees.

Ireland: Drs. M. J. Nolan, H. R. C. Rutherford.

Eight were from county or borough mental hospitals, one was from a State institution, three from a registered hospital, two from private mental institutions.

The Committee had met 13 times, the average attendance having been 8, and the meetings had been held in the places which best suited the members of the Committee, in England and Scotland, so as to divide the travelling as fairly as possible. Seven times the Committee had met in London, three times in York, and once each in Glasgow, Manchester and Carlisle. Dr. Bedford Pierce has already referred to the ambitions of the Committee, the great pains they had taken, and the enthusiasm which had been expended on the work; he had spoken also of the correlation of the syllabus of training with the contents of the book. Although the syllabus of training was taken as the guide, it had not been possible to adhere to every word which was put down in the syllabus; the authors had to have some liberty in choosing their own language. Substantially, however, the contents of the book were as put down in the syllabus of training. With regard to the final editing, though the contributions were completed, much work still remained to be done in avoiding repetitions, and to condense the book into as reasonable a compass as possible and to make it one coherent whole. That work will be done if what has been done so far was approved.

The PRESIDENT said the thought uppermost in the minds of members must be one of gratitude to the Committee for their labours. The proposals before the meeting were (i) That the Association's Revised Handbook of Mental Nursing be approved, (ii) that a grant of £75 be made for expenses thereof, and (iii) that the Association tender to the Committee its grateful and cordial thanks for the work they have so kindly undertaken and brought to so able a conclusion.

This was carried by acclamation, and terminated the Annual Meeting for 1921.

The QUARTERLY MEETING followed, the Council and various committees having met earlier in the day.

The PRESIDENT said it had been ascertained that the minutes of the previous meeting were signed by Dr. Menzies at the last Annual Meeting.

MATTERS ARISING OUT OF THE COUNCIL MEETING.

The PRESIDENT said the question of the activities of the General Nursing Council came up for discussion, and a certain amount of information had been obtained as to their proposals, which were not yet published, but would be made known shortly. The facts brought to their notice had led the Council to set up a committee to consider the situation which had now arisen by the establishment of the General Nursing Council in respect to the training and examination in mental nursing. That Committee had been empowered to make very full inquiries, and would, in due course, report to the Association. It was not necessary for him to add more, because he was sure the members present realised the possibly somewhat serious nature of the new situation with reference to this Association. The Committee now to inquire into the matter would hope to put members in possession of the facts, so that a conclusion could be arrived at.

ELECTION OF NEW MEMBERS.

The PRESIDENT nominated Dr. J. N. Sergeant and Dr. H. J. Norman as scrutineers.

The following gentlemen were elected members:

BUTCHER, WALTER HERBERT, M.A., M.B., B.Ch.Oxon., M.R.C.S., L.R.C.P.
Lond., Assistant Medical Officer, City Mental Hospital, Humberstone,
Leicester.

Proposed by Drs. J. Francis Dixon, C. W. Bower, and R. Worth.
PHILLIPS, PHILIP GORDON, L.R.C.P., L.R.C.S.Edin., Medical Superintendent,
Oulton Hall and Stainbeck Ministry of Pensions Neurological
Hospital, Oulton Hall, Woodlesford, near Leeds.

Proposed by Drs. J. E. Middlemiss, R. Worth, and G. Warwick Smith.
GILFILLAN, JOHN AITKEN, M.B., Ch.B.Glas., Assistant Medical Officer,
London County Mental Hospital, Long Grove, Epsom.

Proposed by Drs. D. Ogilvy, V. Lindley Connolly, and E. G. T. Poynder.
DRURY, KENNETH KIRKPATRICK, M.C., M.D., B.Ch.Dublin, Senior Assistant
Medical Officer and Deputy Superintendent, County Mental Hospital,
Stafford; "Swift Brook," Corporation Street, Stafford.

Proposed by Drs. B. H. Shaw, A. Miller, and H. Brougham Leech.

FARRAN-RIDGE, CLIVE, M.B., Ch.M.Syd., D.P.M.Lond., Assistant Medical Officer, Darenth Training Colony, Dartford, Kent.

Proposed by Drs. E. B. Sherlock, J. G. Porter-Phillips, and R. H. Steen.

MCKAIL, ROBERT BUCHANAN FORBES, M.B., Ch.B.Glas., Senior Assistant Medical Officer, "Calderstones" Certified Institution for Mental Defectives, Whalley, near Blackburn.

Proposed by Drs. R. M. Stewart, R. M. Clark, and R. Worth.

SUFFERN, CANNING, M.A.Camb., M.R.C.S., L.R.C.P.Lond., Junior Assistant Medical Officer, City Mental Hospital, Nottingham.

Proposed by Drs. E. Powell, R. Worth, and G. Warwick Smith.

ROBERTS, EDWARD DOUGLAS THOMAS, M.R.C.S.Eng., L.R.C.P.Lond., Assistant Medical Officer, Herts County Mental Hospital, Hill End, St. Albans.

Proposed by Drs. A. N. Boycott, W. J. T. Kimber, and L. Rolleston.

MCCUTCHEON, ARCHIBALD MUNN, M.B., Ch.B.Glas., Resident Medical Officer, Monyhull Colony, King's Heath, Birmingham.

Proposed by Drs. W. A. Potts, R. Worth, and G. Warwick Smith.

RIDDEL, DONALD OLSON, D.S.O., M.B., Ch.B.Aberd., Assistant Medical Officer, County Asylum, Whittingham, Preston.

Proposed by Drs. R. Worth, F. R. Gilmour, and G. Warwick Smith.

MASEFIELD, WILLIAM GORDON, M.R.C.S., L.R.C.P.Lond., Deputy Medical Superintendent, Severalls Mental Hospital, Colchester.

Proposed by Drs. R. C. Campbell, J. Noel Sergeant, and R. Worth.

THE DINNER.

Announcing the arrangements made for members to dine together in the evening, the President said it seemed a pity that this practice should have fallen into disuse during the war, and it was his hope that the custom might be revived.

PAPER.

"The Medical Examination of Delinquents." By DR. W. HAMBLIN SMITH, Medical Officer, H.M. Prison, Birmingham.

DISCUSSION.

The PRESIDENT, in thanking the author for his communication, said that he had handled the subject in a way which was readily followed and easily understood. He hoped it would be followed by a good discussion.

DR. W. A. POTTS (Psychological Expert to the Birmingham Justices) wished to take the opportunity of thanking Dr. Hamblin Smith very much for his extremely interesting paper, which appeared to have covered almost the whole ground of this very large subject. During the last two years he, the speaker, had been engaged in somewhat similar work, though he was brought into contact with a more limited number of cases. He could amply confirm Dr. Hamblin Smith's contention that every offender was worthy of investigation; indeed he urgently required it. He would also confirm what the author said as to such examination proving, in the end, an economical procedure. Whatever the cost of such examination might be, it would be sure to be very much less than that involved in leaving the case insufficiently examined. He could give one very definite instance from Birmingham, which occurred recently. A little boy who was convicted of stealing was sent to a reformatory school. He had been placed upon probation before, but never had any medical examination. The lad escaped on two occasions, and gave much trouble. On the third occasion he stole £10 from the Superintendent of the Institution, and that was regarded as a much more serious matter; therefore he (Dr. Potts) was asked to examine him. It was soon evident that it was a case of word-blindness, which placed him for the moment in the category of mental defectives, as he could not benefit from the ordinary instruction in school. Thus in escaping from this school the lad was obeying a healthy instinct: he knew the institution was of no use to him. Arrangements were then made for placing him in a school for mental defectives, where he was now doing satisfactorily. With regard to the physical side, he saw, two years ago, a very interesting case, that of a young man who was convicted of stealing. He

(Dr. Potts) found he was suffering from phthisis, and the Justices consented to place him on probation, on condition that he went to a sanatorium for consumptives. He was there three months, and since he left the sanatorium he had been an exemplary member of the community: he obtained employment of a lighter nature than before, and had remained in it ever since. This was his second offence, and had he not been dealt with in the way he was, he might have now been on the high road to becoming a confirmed criminal, or else have been a continual charge as a definite case of tubercular disease. Dr. Hamblin Smith, in his paper, drew attention to the weak point in the Birmingham scheme, namely, that a so-called doubtful case was allowed to go through the Courts without being examined. The onus of deciding whether it was doubtful rested on the Justices. If the person were sent to prison, he was examined by Dr. Hamblin Smith, but many cases were placed on probation and dealt with in an unsatisfactory manner. The author suggested that a medical assessor should sit in Court. Some of the Birmingham Justices, too, suggested it would be an advantage if he (Dr. Potts) were to attend the Children's Court and point out the cases which required expert examination. He did attend a number of times, and pointed out a considerable number of cases which he thought required investigation, but, for some legal or other reason, it was decided that such examination should not be carried out. Therefore he considered it would be a waste of time for him to continue. To give an instance which illustrated the extraordinary blindness of magistrates to the necessity of a special examination, he wished to refer to the case of a good-looking girl, *æt.* 18, whom he saw in the dock a few weeks ago. On this occasion she was charged with drunkenness. She was obviously not a mental defective. On previous occasions she had been charged with stealing and with prostitution, and convicted. On this occasion the magistrate in charge said severity had been tried in this case, and he would now like to try leniency. He inquired about her home, and the reply was that it was a satisfactory home. But the Probation Officer's idea of a satisfactory home, as a rule, was: "Were the parents addicted to drink, and did they go regularly to church or chapel?" It was evident to him (Dr. Potts) that this girl must be suffering from some mental conflict. The magistrate told her he would not send her to prison this time, but would place her on probation, and she would have an opportunity of thinking over her future course, when he hoped she would behave differently. That young woman must be labouring under a mental conflict, and she was not likely to solve it in her own home; hence it was essential she should be got away from home as soon as possible. That was the manner in which cases were still being dealt with in Birmingham, although there were two doctors available to examine these cases if called upon to do so. Dr. Hamblin Smith had referred to the great advantage of examining these cases in an institution. He, the speaker, agreed that in many cases this was a great advantage, but he would not say it was an advantage in all cases. He examined cases which did not go to prison at all, which were remanded out of custody, and it was very important that their self-respect should not be injured by their going to prison, because one of the great problems in connection with delinquents, which Dr. Hamblin Smith mentioned, was the feeling of inferiority. Once a person had been in prison, even though he might not be kept there and was there only on remand, that could only have the effect of increasing his sense of inferiority. With regard to the course of instruction which it was proposed to hold in Birmingham University next summer, he might say the course had been definitely settled, but it would be a great help if names of one or two who proposed to take the course were received. The course would last a fortnight, and it would be intensive, consisting of lectures and practical demonstrations. The fee would be five guineas. Those taking the course would have to make their own boarding arrangements for the time. He asked that names of those intending to take the course might be sent to either Dr. Hamblin Smith or himself as soon as possible.

Dr. J. T. DUNSTON (S. Africa) spoke of what he saw on the subject during his recent visit to America. In the State of New York they had gone so far that every individual person who was sentenced to a year or more of imprisonment went through a most complete medical examination. There was now being built a large and splendidly fitted reception prison, next to it a huge medical institute. At the present time the work was being done by Dr. Glueck under more difficult circumstances. The whole scheme to be carried out in the new buildings had

been devised by the National Committee for Mental Hygiene. On the ground floor of this new institute there was provision for, first, the prisoner to be examined by a surgeon, then by a physician, finally by a psychiatrist. All the assistance of the social workers, the psychiatrists and other people interested was available. The medical examination of any one person occupied several hours. The final "say" rested with the psychiatrist, for it was he who decided whether the prisoner was defective, was mal-adjusted, or was actually insane. If the psychiatrist found, after consultation with his colleagues, that the man was normal, he recommended what he regarded as the right occupation or vocational training or treatment for that particular prisoner. Their prisons were divided into groups—agricultural, industrial, and so on—and the psychiatrist decided, in conference, into which prison the particular felon should go. If he were found to be defective, or mal-adjusted, or insane, he was certified by the conference for detention during the remainder of his life, and was dealt with according to the methods of a mental hospital or whatever home or other care was deemed to be necessary for him. As regards juvenile offenders he saw work at Boston, New York, Toronto, and other places. The method differed very considerably. In Chicago every juvenile delinquent was examined by a psychiatrist, who sat as assessor beside the judge, whereas in Massachusetts they made a most detailed personality study and only formed their conclusions after many hours' study of the child. In America they had arrived at the view that it was the individual who really mattered, not the crime.

Mr. TREVOR said it had not been his intention to take part in this discussion. He came as a humble listener, as he wanted to hear as much as he could from the medical side of this most interesting subject. It was impossible for anyone to listen to what had been done, either in Birmingham or America or anywhere else, in keeping these defective persons out of prison without sympathising with such efforts to the full. What one realised was, that there was nothing more futile than the sending of such persons who were not responsible for their actions, for short periods of imprisonment. It had only to be stated to be appreciated what a real saving was effected by avoiding the sending of these people to prison, but detaining them, if necessary, for longer periods. If the various branches of the Mental Deficiency Act could be worked for a sufficient time, there could be no question that a great saving to the country would be effected.

Sir ROBERT ARMSTRONG-JONES spoke of an effort being made to found a Magistrates' Association, one object of which would be to secure greater uniformity in the dealing with similar offences in the various districts. What had kindled this desire was a recognition of the different treatment to prisoners by the various benches of magistrates. There was the "*lex talionis*" (an eye for an eye and a tooth for a tooth), that punishment must be given as a correction and as an example to others. Certain benches took that view very strongly. Dr. Hamblin Smith took the very sympathetic view that a delinquent should receive special treatment, and should be mentally examined, and he, Sir Robert, emphasised this at the Guildhall Conference of Magistrates which he attended as a delegate from the Petty Sessional Division of Carnarvonshire. At Birmingham they had a special medical officer, who gave his opinion in cases of mental defect with a view to improving the individual and raising his status. But there were benches which took note of neither, but considered that environment was entirely responsible for crime. He did not agree with a view which had been given of delinquency, that it was due to mental conflicts; and that it was in consequence of these conflicts that anti-social conditions arose, the result being the evolution of the criminal. He regarded the delinquent in these cases as congenitally weak-minded, with deficient self-control. He thought they were not cases of mental conflict, but just a yielding to temptation and giving way to instead of resisting the impulses owing to congenital mental weakness.

Dr. J. G. SOUTAR said that delinquency occurred not only in those who got into the hands of the law. Many boys and girls committed delinquencies. Thieving, lying, cruelty were very common among young people who were neither intellectual defectives nor moral imbeciles. It was the experience of most alienists that, under treatment which was directed to adjustment of these young people to the facts of life, they ceased to be an anxiety to parents and they grew up to be useful members of society.

The PRESIDENT remarked that it was with no small amount of self-restraint that he forebore to join in the discussion on this paper. He had seen the work which was being done at Birmingham, and for that and other reasons he felt great interest in it. So great was its importance that he thought it had not received due attention from the Association. It was the custom annually to kindly review in the Journal the Reports of the Boards of Control. These reviews were very helpful, and he thought the same might with much advantage be done as to the Reports of the Prison Commissioners. In the American journal, *Mental Hygiene*, he saw details of what was being done in the United States, and to some extent in Canada, on this matter. One result of that reading was at first to make him feel impatient with his own country. But, in the course of some conversation he had with Sir E. Ruggles-Brise, the latter was able to show him what was being done in this country, and had been done for years; but it had not been written and talked about much. He was now aware that in the annual reports of the commissioners of prisons and elsewhere there was a very large amount of information of value to the medico-psychologist, which could be reviewed in the Association's Journal every year with mutual advantage.

Dr. HAMBLIN SMITH, in reply, agreed with Dr. Potts that the weak part of the Birmingham scheme was the way in which the cases were selected. But he did not at present know how that could be overcome. He (Dr. Smith) was not insisting that every case should be examined in prison, but said that examining a case in prison gave, as a rule, more satisfactory surroundings for examination than were available outside. If a case could be examined outside, it was better not to send it to prison. And further, in answer to Dr. Potts, it was equally necessary to examine before probation, just as before sending to prison. In answer to Dr. Dunston, it was a question whether they should examine a few cases intensively, or go over very many cases in a more superficial manner. On the whole, he thought the former was preferable. With regard to Dr. Soutar's remarks, he could assure the meeting that on a number of occasions the examination and analysis of a case had had a most excellent result in rehabilitating the subjects. He could not give statistics of cases, but anyone who would work along those lines would feel amply rewarded for his trouble.

PAPER.

"Forgetting." By Dr. H. DAVIES JONES (Ashurst Hospital, Littlemore, Oxford).

Sir ROBERT ARMSTRONG-JONES said this question of forgetting was very interesting, and there was something paradoxical about it. In order to forget a thing, one must first remember it; it must be brought to the focus of attention, and then an effort must be made to forget it—two evidently very contradictory aspects. He was not sure the description was not good which represented the conscious as a little ring the size of a threepenny-bit, resting on the subconscious or the pre-conscious mind the size of a shilling, both resting on a table, an extensive reservoir which was the unconscious mind, made up of tendencies, possibly inherited, possibly, also, the results of education. If anything was forgotten, it was astonishing how little links of association helped one to remember. Frances Power Cobbe said the power of forgetting was such an extraordinary thing that it was very much like a faithful private secretary; leave it alone and it will do its own work in its own way. If one had forgotten, the subconscious mind would bring it up. It must have happened to all that, having forgotten a thing, it came to mind when least expected. He could not see the Freudian aspect, that by definitely focussing the power of the mind the thing was forgotten. The more he, the speaker, tried to forget certain things, the more they seemed to be present in mind, and he had never yet heard a satisfactory explanation of that paradox. Bergson referred to the cortex, not as the power of remembering, but as the potentiality for forgetting things, otherwise things would come into the cortex and the result would be incoherent thought and confusion of ideas.

Dr. JAMES STEWART said he could remember certain arguments he used to have with himself fifty years ago, and he concluded that the senses helped more in the way of recalling events than did anything else. For instance, a pretty girl in the

West Indies gave him a flower of sweet perfume in the garden of a friend. The event and the girl went from his mind, but when, years afterwards, he smelt a similar flower, it brought up vividly the image of the girl again. There must have remained a glimmer in his mind of the first event, which the smelling of the second flower reawakened. During thirty years' dealing with inebriates he found that the memory of these people was invariably affected; he concluded it was a result of the damage done to the brain produced by the alcohol. To that, too, he attributed in great part the lying indulged in by the inebriate.

Dr. C. STANFORD READ said he found but little to comment upon in the paper, as it was only a brief sketch of the Freudian mechanisms of the forgetting in every-day life, and giving very good illustrations of it. But it was curious to hear Sir Robert Armstrong-Jones talk about "the paradox of forgetting," because there were so many illustrations of that fact. How else could hysterical blindness be explained? The explanation was, that a dissociated part of the mind remembered something; that something was there, but the consciousness refused to see that which the other part of the mind did see. Such experiments could easily be made by hypnotic suggestion. While in the dissociated condition the suggestion was made to the patient that he would not be able to see this or that, and it could be proved that the dissociated part of the mind did see what the conscious mind was not allowed to see, and that was merely done by suggestion. Very likely much of the forgetting did not come into the unconscious mind, but simply lay in the pre-conscious and so might be superficial. He had an illustration of that in his own person not long ago. Having arrived at the age in which, though full of ambition and enthusiasm he was sorry to know that the years were advancing more rapidly than he cared for, he entered a bookseller's shop and asked for a book the author of which he knew very well, but was unable to remember his name. It was some time later that he learned by association that it was Jung; it was simply that he did not wish to realise he was not now as young as he might be.

Dr. BEDFORD PIERCE said he would like to ask the author whether he really meant that repressed memories must find an expression in consciousness, in some way or other. If so, there was an inevitableness about it which he, the speaker, did not understand. He spoke on the same point at the annual meeting at Buxton. He saw no reason why a repressed memory should necessarily reappear in consciousness at some future time. Why could not ideas remain permanently latent in a person? Permanent physical things or conditions could remain latent many years, why not also mental? Surely there was no conservation of psychical energy which meant that because a thing was pushed out in one place it must necessarily crop up in another? Yet psycho-analytical literature was full of expressions like "dammed back," and "it must be appearing somewhere else." That was one of his difficulties in accepting the psycho-analytic theory. He asked whether the writer did not think that another analyst, dealing with the same symptom, might arrive at a different conclusion. He knew that was a question it might not be possible to answer. Sometimes the train of associations was so remote and crooked that one wondered whether another analyst would not have reached another explanation of the same phenomenon.

Dr. A. E. EVANS said what struck one forcibly in dealing with cases of amnesia was the mental upset attending such an affliction. By getting at the individual association which was offending and relieving the amnesia, there was evident pronounced benefit to the patient. He could recall numerous instances in which the amnesia was associated with a condition of real mental agony; and by recovering memory after memory, by a process of association, and linking memory with memory, the mental agony had been relieved. Arguing back, one could say that if in these pronounced cases of amnesia there was mental agony, there was probably mental distress of a certain degree associated with forgetting.

Dr. DAVIES JONES, in reply, said the point raised by Dr. Pierce as to whether repressed ideas would express themselves was an important one. With that question he coupled another; was forgetting an active or a passive process? To his view, forgetting was an act of repression. There were many varieties of forgetting; but in the type he alluded to, repression produced the forgetting. It was an active process to begin with, but repeated attempts to repress would render it passive. He thought repression would express itself in consciousness in the form of a symptom if it had attached to it any emotion; i.e., repression must involve a conflict, and a conflict must involve pain; and as long as there was pain associated

with it, there would always be something present of a painful nature. The term "pain" was used generally and included any hysterical or emotional condition. But if the conflict could be satisfactorily settled, from the patient's point of view, that distress would be no longer present; there would be no manifestation of repression coming back into the consciousness. Freud maintained that hysterics were unsatisfactory attempts at cure, that satisfactory attempts would not express themselves. He wished to thank Dr. Stanford Read for answering the point about the paradox, and he endorsed that gentleman's view entirely. He could not see a paradox in forgetting. Dr. Stanford Read's instance in regard to Jung's name was of the kind he, the speaker, quoted. As to whether different analysts would arrive at different conclusions on the same cases that depended on the analysts. Very much depended on the line adopted towards the patient by the first analyst who saw him, as well as on the line the patient adopted towards him. Any subsequent interview, whether with the same analyst or another, would suffer from the impress made by the first, and it would be a case of the result of this second analysis *plus* the first result. One of the great difficulties in the practice was caused by having chronic cases which had undergone tinkering by several other people, who often said the patient must try to drown all memories; he was told by one that he had nothing to worry about, and another told him he would never get well. It was being realised that work was going to be one of the most potent helps for these people, *i.e.*, a more conscious employment that the psycho-analyst could give. He had never yet met with a case in which he could—in an inebriate, for example—find out whether the forgetting could be traced, and then treated along Freudian lines.

THE ASSOCIATION'S BRONZE MEDAL.

The PRESIDENT said two essays had been sent in for the Association's Medal. Both of them were able, both showed painstaking work; but those whose duty it was to examine them and adjudicate upon them had concluded that neither came up to the level demanded by the Association for the bestowal of its medal. One of the essays was considered to show so much promise that the writer should be invited to enlarge the subject, for, with the addition of a little further work, there might be a good chance of securing the medal.

This concluded the meeting.

SOUTH-WESTERN DIVISION.

THE AUTUMN MEETING of the Division was held, by the courtesy of Dr. Blachford, at the City Mental Hospital, Fishponds, Bristol, on October 28th, 1921.

Dr. Soutar was voted to the chair, and the minutes of the last meeting were read and signed.

Dr. Bartlett was nominated Honorary Divisional Secretary.

Drs. Good and Soutar were nominated Representative Members of Council.

The place of the Spring Meeting was fixed for the Dorset County Mental Hospital, and the Secretary was instructed to tender the thanks of the members to Dr. Peachell for his kind invitation.

Dr. BLACHFORD then read a most interesting paper on "The Functions of the Basal Ganglia," and Dr. HADFIELD, Pathologist of the Bristol University, demonstrated a brain specimen showing a sclerotic patch in the optic thalamus from a case with a history of epileptiform fits, increasing in number and severity, for three years without permanent motor symptoms. Drs. SOUTAR, HADFIELD and BARTLETT took part in the ensuing discussion.

At the conclusion of the meeting a hearty vote of thanks was accorded to Dr. Blachford for his kind hospitality.

SOUTH-EASTERN DIVISION.

THE AUTUMN MEETING of the South-Eastern Division was held by the courtesy of Dr. C. M. Tuke at Chiswick House, Chiswick, on Wednesday, October 12th, 1921.

The members were entertained to luncheon and were afterwards shown round the house and grounds.

The meeting was held at 4 p.m.

Dr. C. M. Tuke took the Chair.

The minutes of the last meeting were read and confirmed.

Dr. D. BOWER proposed, and it was seconded by Dr. G. E. SHUTTLEWORTH, that the Spring Meeting should be held sometime in the month of April.

At a meeting of the Committee of Management held the same day it was decided that the day and place of the Spring Meeting be left to the Hon. Divisional Secretary to arrange.

Dr. TUKE then read his paper "On Some Points of Historical and Architectural Interest in Chiswick House," and Dr. G. W. SMITH gave a short account of a case of "Mania in Myxoedema," which was followed by a discussion, in which Dr. EDWARDS and Dr. G. F. BARHAM took part. Dr. SMITH replied.

A vote of thanks to Dr. Tuke was carried by acclamation, and the members were then entertained to tea, which concluded this very pleasant meeting.

PARLIAMENTARY NEWS.

November 3rd, 1921: Ex-service men in asylums.—In reply to a long question by Capt. Loseby, Mr. MACPHERSON said that he was bound by law to send a certified patient to an asylum or some other place approved by the Board of Control. The places he utilised for this unfortunate class of men were very well run indeed. He did not ask for any charity. It was an obligation of the State to attend to this work. Mr. Macpherson added that he had no personal knowledge of the success or otherwise of Chartfield. A report was now being submitted. He should consider the individual merits of the place. It was, of course, his duty to see that the various institutions under the department were good and were carrying on successful work. He refused to send ex-service men to a charity institution.

Sir WATSON CHEYNE asked whether it was not a fact the general asylums were fully aware of the hope and possibility of treatment, and put that as their first object in receiving patients.—Capt. LOSEBY said he could not follow what kind of hardship was held to be inflicted upon the insane by compelling them to mix with the sane.—Mr. MACPHERSON said it was difficult to discuss the question of policy by means of question and answer, but he refused to mix insane patients with neurasthenics.

November 8th, 1921: Ex-service men in asylums.—Capt. LOSEBY asked for the number of lunatic asylums approved by the Ministry of Pensions for ex-service men and the number of these which were run for private gain.—Mr. MACPHERSON said that approximately 240 institutions were under the control of or had been approved by the Board of Control and the Ministry, and of these more than 60 were private establishments.

November 9th, 1921: Ex-service men in asylums.—Capt. LOSEBY asked the Prime Minister if the treatment allowances upon which some 6000 ex-service men depend, were paid strictly on the condition that these men consented to be confined in lunatic asylums, whereas the allowance was refused in respect of patients being treated and anxious to be treated in certain private institutions of the Board of Control; also whether the official figures showed that on January 1st, 1919, there were 2507 ex-soldiers confined in lunatic asylums; that the figures had risen to 4673 on January 1st, 1921, and to 6435 on October 27th, 1921. He asked, further, if the Prime Minister was aware that bitter laments were continually emerging from the men so confined, and whether he would consider the advisability of setting up a Commission of members of the Houses of Parliament to hear complaints and consider whether conditions could be improved.

Mr. MACPHERSON, who replied, said that the lunacy law required that every person who was certified as insane should be sent to an institution approved by the Board of Control, save that under certain conditions a single patient might be placed in a private house not specifically licensed for the reception of lunatics. Treatment allowances were granted, and the necessary cost of treatment was defrayed by the Pensions Department in respect of all certified patients whose insanity was due to war service and who were receiving treatment in institutions,

whether public or private, approved by the Board of Control and by the Ministry. He could not speak for the ex-service men in asylums the origin of whose state did not entitle them to Royal Warrant benefits, but as regards certified "service patients" it was not accurate to suggest that any large number of complaints were received as to the conditions of their treatment. On the contrary the number was small and they had invariably proved to have been made on unsubstantial grounds or to be of minor importance. When a complaint was received the practice was for the institution to be inspected and the whole circumstances investigated by Pensions Ministry officers, either alone or jointly with Commissioners of the Board of Control. Under an arrangement with the Board of Control, asylums were now visited by medical officers of the Pensions Ministry, and the service patients personally interviewed. Thus he was kept in close touch with the conditions of asylums and he did not consider that there was any ground for adopting the suggestion to set up a commission. He could not accept as accurate Capt. Loseby's statement as to the number of certified ex-soldiers in asylums in January, 1919, and January, 1920. On the latter date the number was approximately 6000.

Capt. LOSEBY inquired whether, if he could produce tangible evidence that some lunatic asylums were highly unsuitable for ex-service men and make out a *prima facie* case, the Minister would advise the setting up of a commission.—Mr. MACPHERSON did not think he could do so, but said he would be glad if any member of that House would visit any institution under his control. He had taken the greatest personal interest in this particular branch of work, and the complaints he had received had always been on unsubstantial grounds.—Mr. GRITTEN asked whether it would not cause a large drain on financial resources to place large numbers of patients in private institutions.—Mr. MACPHERSON said that was so; the State, in his opinion, was behaving very generously, but he had consistently refused to mix patients who had been certified with those who had not. In answer to Sir Philip Magnus, Mr. Macpherson added that the private institutions approved by the Board of Control, like the asylums, were periodically visited by the department. In reply to Mr. Gillis, he said that provision had been made in the Ministry's neurasthenic hospitals for the accommodation and treatment by trained medical officers of uncertifiable cases suffering from war injury.

EDUCATIONAL NOTES.

The Maudsley Hospital.—The lectures and practical courses of instruction for a Diploma of Psychological Medicine, fourth course, 1922, are announced as follows:

Part I.—(I) Eight Lectures on the Anatomy of the Nervous System. By Sir Frederick Mott, K.B.E., M.D., LL.D., F.R.S., F.R.C.P. On Tuesdays, at 2.30 p.m., commencing on January 3rd, 1922. The evolution of the nervous system in the animal series; physiological levels; macroscopic and microscopic anatomy of the nervous system; the neurone concept—the projection, association and autonomic systems; ultimate distribution of the cranial nerves, spinal nerve roots and sympathetic nerves; the meninges—cerebral arteries and their distribution—the intra-cranial venous and lymphatic systems; the congruence of structure and function in the brain; the congruence of experimental investigation with anatomical observation; the clinico-anatomical methods of investigating the functions of the central nervous system—spinal cord—medulla oblongata—pons—cerebellum—mesencephalon basal ganglia—cerebral hemispheres; the cortex cerebri in relation to cerebral localisation, including the cerebral mechanism of speech; the structure of the endocrine and reproductive organs.

Practical Instruction and Demonstrations: Methods of staining nervous tissue and preparing it for microscopical examination; the living nerve-cell—the nerve-fibre; degeneration and regeneration of nerves; distribution of sections, illustrating the principal diseases of the nervous system, for mounting as a permanent collection.

(II) Eight Lectures on the Physiology of the Nervous System. By F. Golla, M.D., F.R.C.P., Physician, St. George's Hospital. On Fridays, at 2.30 p.m., commencing on January 6th, 1922. Reflex action—co-ordination and proprioceptive system; motor system, including muscle and nerve; sensation—fatigue—localisation and reference of sensation, normal and abnormal—special senses—mental

work and fatigue—methods of investigation—physiology of the emotions—endocrinology—the autonomic system—action of alcohol and drugs—physiological chemistry—trophic and vegetative functions.

Practical Instruction and Demonstrations: Physiological Chemistry: Chemistry of the nervous system and cerebro-spinal fluid; metabolism; vitamins and food deficiency; physico-chemical methods as applied to bio-chemical research; blood and urine analysis—acidosis, uremia, uric acid; gastric contents analysis.

Practical Physiology: Physical concomitants of emotion; recording reflexes and tremors in man; action of drugs on autonomic system; the study of reflex action in the spinal animal.

(III) Eight Lectures on Psychology. By Henry Devine, M.D., F.R.C.P. On Thursdays, at 2.30 p.m., commencing on January 5th, 1922. Definition and scope of psychology—behaviour—adjustment—classification of responses—instinct—habit—thought—relation of mind and body—the psycho-physical organisation as a biological unit—integration—methods of psychological investigation; analysis and classification of modes of consciousness; cognition—sensation—perception—imagination—memory—association—judgment; conation—attention—volition; affection—emotion—mood—sentiment; personality—temperament—character; sleep—dreams—suggestion—hypnosis—dissociation; illusion—hallucination—delusions—disorders of attention; fatigue—effects of drugs on reactions.

Practical Instruction and Demonstration: Sensation—psycho-physical methods—statistical methods—reaction times—association—memory—intelligence tests—muscular and mental work.

Part II: Part II will follow in April, 1922, and will include lectures and demonstrations on the following subjects (a further announcement will be made as to times and lecturers): (1) The diagnosis, prognosis and treatment of mental diseases; (2) mental defect and crime; (3) the practical aspect of mental deficiency; (4) pathology of mental diseases, including brain syphilis, its symptomatology and treatment; (5) the symptomatology of mental diseases; (6) the psychoneuroses; (7) demonstrations in neurology.

Fees: For the whole course of Part I and Part II, £15 15s.; for Part I separately, £10 10s.; for Part II separately, £10 10s.; for one single series of lectures in Part I, £4 4s.; for one single series of lectures in Part II, £2 2s.

Inquiries as to lectures, etc., should be addressed to "The Director of the Pathological Laboratory," Maudsley Hospital, Denmark Hill, S.E.

The Fellowship of Medicine, 1, Wimpole Street, W., will collect fees from, and issue admission tickets to, medical men intending to take the course, who are introduced by the Fellowship.

The Medical Aspects of Crime and Punishment.—Arrangements for a course of instruction on this subject are in the hands of the Medical Faculty of the University of Birmingham. It is proposed that the course should extend over a fortnight, during the summer session. There will be lectures on Psychiatry (by Dr. P. T. Hughes), on Mental Deficiency (by Dr. W. A. Potts), and on "Criminology" (by Dr. M. Hamblin Smith). There will also be practical demonstrations, as may be arranged, at the various institutions for defectives near Birmingham, at the Prison, and possibly also at Barnsley Hall Mental Hospital. The University Lecturer on Psycho-therapy for the year will also deliver two lectures. The course will be limited to medical graduates, male and female.

RETIREMENT OF LIEUT.-COL. T. E. K. STANSFIELD, C.B.E., M.B.

The London County Mental Hospital service has lost its *doyen* in the person of Lieut.-Col. Stansfield, who retired from the post of Medical Superintendent of Bexley Mental Hospital on July 1st, 1921. He has been a notable figure in London lunacy circles ever since his appointment at Banstead as a medical officer in 1890, and his work and precepts have had a wide influence in the moulding of the modern mental hospital. In his earlier days he travelled extensively on the continent and in America, visiting institutions devoted to the care of the mentally afflicted, and in 1890 published the results of his inquiries, which, together with his observations, form one of the most valuable contributions ever made to the subject of the housing and treatment of the insane. He has ever been a strong propagandist of the colony and villa system of housing, the separate treatment of acute and chronic

cases, skilled occupations as therapeutic measures, and the hospitalisation of asylum medical administration. Though not the least of his many life-long activities, he will be most remembered by the admirable system of clinical recording which he established at Bexley referred to by the President of our Association in his Presidential Address⁽¹⁾ which later became general throughout the London Mental Hospitals and has been increasingly adopted throughout the country.

His resignation was accepted with much regret by the Asylums and Mental Deficiency Committee of the London County Council, and graceful reference was made to his valuable services by Mr. W. C. Johnson, J.P., at the Council Meeting which received the report. On June 30th at Bexley Mental Hospital there was a representative gathering of present and past members of his Committee, former colleagues (including Dr. C. Hubert Bond, Commissioner of the Board of Control), officers, staff generally, and patients of the hospital, at which Lieut.-Col. Stansfield was the recipient of a handsome silver gilt casket containing an engrossed address in appreciation of his devotion to his great ideals of work and duty, and the success which had been attained in their achievement.

(1) See page 439, vol. lxvii, October, 1921.

CONVALESCENT FUND FOR MENTAL NURSES.

A number of applications for grants from the balance of the Convalescent Fund of the late Asylums Workers' Association have been dealt with by the Committee appointed in May, 1920, but a sum still remains to be disposed of. Medical Superintendents are reminded that applicants for grants should communicate with the General Secretary or Dr. J. F. Powell, Mental Hospital, Caterham, Surrey.

NOTICES BY THE REGISTRAR.

FINAL EXAMINATION FOR THE NURSING CERTIFICATE, MAY, 1921.

List of Successful Candidates.

* Passed with distinction.

Birmingham, Rubery Hill.—Richard J. Amphlett.
Birmingham, Winson Green.—Clara Bullivant, Leah B. Fray.
Brighton.—Beatrice M. Fidler, Ernest H. Vinehill.
Cambridge.—Jesse W. Cornell, Vernay Hodgman, Albert F. Minett.
Canterbury.—Linda V. Mildenhall.
Chester, Macclesfield.—Hilda A. Belfield, *Kathleen Hughes, Frances Moss, Catherine Thompson, Harry Bannister, Ernest Young.

Chester, Upton.—Annie C. Manley, Elizabeth O'Keefe, Doris Price, Margaret H. Timmis, Harry F. Bromley, Fred Carman, Charles Martin, Thomas Waller.
Cornwall.—Beatrice A. Bennetts, Norah Mauder, Lucinda Mitchell, Beatrice M. Veale, Thomas H. Bligh, Richard W. Bunney, Charles J. Gill, George Hearn, *Thomas J. Roskelly, Alfred J. Stevens, Frederick C. Stevens, Isaac Tiller, Alexander R. Weller, Arthur J. Wendon.

Derby (Borough).—Edith A. Chambers, Evelyn W. Lee, Dorah Twigge.
Derby (County).—Gertrude A. Jeffrey, Sarah A. Radford, Gertrude A. Webster, *William H. Hammond.
Devon.—*Jessie Barrell, Ethel F. Gunn, *Lilian Elisia Warner, Joseph W. Kevern.
Dorset.—Ivy E. Allen, Dorothy M. James, Mary A. Leslie, Mary Lowman, Hilda F. Wadham, Frank J. Christopher, Theophilus B. P. Dunman.
Durham.—Mary H. Allison, Ada Clark, Mahalah E. Dyer, *Margaret E. Gallacher, Maggie Keegan, Emily Thompson, Ernest W. Davis, James McPhee, Ernest Scott, *E. G. Stanley.

Essex, Brentwood.—Ethel M. Hare, John V. Cressey, Edward P. Gibson, George Laundy, William J. Potiphar, Henry J. Richardson, Harry Whitehead.

Essex, Severalls.—Elsie A. B. Barton, Alice B. Dawson, Daisy G. Deary, Margaret L. Hicks, Florence M. Holmes, *Lilian M. Hull, Elizabeth Kinnimouth,

Lily L. Leatherdale, Gwendolen D. Price, Dorothy Whitbourne, Eileen M. Wilson, Robert Bessey, George M. Hockley, Frederick Stirling.

Gateshead.—Joseph Bell, Victor S. Dodds.

Hants.—*Lilian A. Barting, May Bocher, Samuel H. Giles, Frederick Jones, Owen Whitely Pharoah, Alexander O. Walker.

Hull.—Hilda E. Watson, Mary L. Willoughby, Tom Wilson.

Isle of Wight.—Lily Beauchamp, Katherine M. Hayes, Charles E. Brown.

Kent, Barming Heath.—Brigid A. O'Donnell, Mary E. Shaw, Lillian A. Wood, Bertie Dominey, Anthony Flynn, George W. Goldsmith, William Humphrey, Albert O'Kill, Richard Thomson, William J. Wallis.

Kent, Charlham.—Gertrude M. Best, Alice E. Cork, Winifred M. Kennedy, Alice L. Mayes, Harold George, Henry W. Solly, Arthur South, Henry E. Weatherall.

Lancaster, Whittingham.—Mary Blodwen Hughes, Margaret A. W. Lee, Lillian E. Milton, *Jane Marsden, *Alice Smith, John W. Barker, Arthur Bracewell, John Dickson, R. Fairclough, Thomas Helm, Cornelius McDowell, Edmund O'Brien, Thomas O'Brien, Frank C. Turner.

Lincoln, Bracebridge.—Ivy E. Blow, Edith Bristow, Ada L. Cooper, Edith Freeman, Dorothy Jelley, Alicia Kendall, Amelia White, Louisa O. Would, George Baumber, Arthur Bott, William Brackenbury, George W. Hough, Frank Weldon.

Lincoln, Kesteven.—Lucy E. Marshall, Charles S. Boddy, Ambrose C. Smith, John Taylor.

London, Banstead.—Mary Browne, Lilian B. Byram, Lucy R. Cutler, Amy Farnsworth Flint, Winifred May Fox, Mary G. Glennane, Margaret K. Graves, Edith E. Higgs, Charlotte Hooper, Lena Maquire, Antoinette M. Power, Gertrude A. Thrupp.

London, Bexley.—Elizabeth M. H. Allen, Bridget Dowling, Margaret W. Flockhart, Lucy M. Gillard, Hetty E. Jolley, Frances C. Jones, Lily M. Jones, Phyllis E. Knell, Dorothy McEntagart, Delia McHugh, Lily Maddock, Mabel E. Newton, Florence A. Parucutt, Florence Shaw, Frank S. Allen, John P. Carran, Arthur G. Draycott, *Albert A. Fackrell, Henry W. Farrant, Sam. M. Hodgson, Ernest C. Jeeves, Leo George Knight, Alfred R. Linford, Richard Lunn, Walter B. Palmer, Henry W. Pepler, Arthur S. Riches, Archibald Russell, Harry H. Ryder, Ernest W. Smith, Frederick C. Thomson, Frederick M. Thorpe, Edwin John Waller, Walter E. Yates.

London, Cane Hill.—Arthur J. Brackenbury, William Scutchings, Charles E. Wheeler.

London, Claybury.—Ellen Burroughs, Evelyn Burdekin, Anastasia Dalton, Julia W. Dalton, Alice M. Feeney, Mary Fennelley, Celia M. O'Boyle, Mary Malloy, Mary L. Pateman, Annie E. Spokes, Jessie M. Twine, William A. Brown, Fred Dawson, Eugene Sheridan.

London, Colney Hatch.—Emily Ashton, *Mollie Kellaghan, Jennie A. O'Callaghan, Harold F. Barnes, Henry Church, William Cooper, Harry S. Diddams, Edgar John Hart, Walter J. Hutchings, Walter Robinson.

London, Ewell Colony.—Emily Moore, Helen O'Sullivan, Cyril Absalom, Alexander MacLennan, Michael Reardon, *Sidney Simmons.

London, Hanwell.—*Katherine L. Chew, Elizabeth Croft, Grace E. Dear, Mary E. Frasier, Annie L. Lear, Gertrude A. Leonard, Emma M. Lole, *Primrose Lyon, Alice M. Marke, E. Martin, Annie E. Newman, Louisa Stelling, John E. Ayres, Alexander Clapperton, Thomas Danby, Charles H. Godden, Frederick W. Hibbert, John King, Frederick Mant, Albert Marshall, M. Mihlemsledt, Burt Nicholls, William E. Turrell, Harry E. Williams.

London, Horton.—Jennie Amos, Annie E. Bailey, Ida Bennett, Ada E. W. Bramble, Bridget Carolan, Beatrice M. Cox, Catherine McClearney, Florence G. Marshall, Mary L. Wadkin, William Lipscombe, Oscar H. Smith, E. Stebbings, Albert W. Spong.

London, Long Grove.—Lily Disbrey, Elizabeth Freeman, Violet I. Foster, Grace M. Roffe, Isabella H. Salter, Harriet L. Shingler, William R. Allen, Richard Crompton, George H. Riley, Arthur Shrimpton, Richard Smith, Albert E. Turner.

London, Manor.—Beatrice M. Bowen, Harriet Curling, Eliza J. Williams, Ronald A. Patrick, Stephen J. Webb.

M.A.B., Caterham.—Frederick C. Finch, George V. Gray.

M.A.B., Leavesden.—Flora Bennett, Annie Harding, Elsie R. Stead, Maud F. Ware, Charles Brittain, Herbert Dade, William J. Dean, William H. Horton, Arthur J. Palmer, George Rowe, Thomas H. H. Simmons, Joseph Turnbull.

M.A.B., Tooting Bec.—Alice M. Hancock, Doris Marmont, Eva A. Rogers, Florence M. Townson, Maria Walker, Alfred Barkham, Thomas Barrett, William A. Crouch, John Gahagan, William E. Flower, George L. Hammond, William R. Humphries, Walter T. Mortley, *Frederick Shelley, Arthur Taylor.

Middlesex, Napsbury.—Alice M. Bromley, Charlotte Connor, Elizabeth A. Hagon, Elsie E. Lovering, Annie Rose, Jennie L. Whitehead, William H. Rose, Charles W. Wells.

Middlesex, Wandsworth.—Mildred C. Jones, Florence M. Jarvis, Margaret Meaney, Hilda K. Picknell, Elizabeth Blythe Reid, Lilian Spray, Gertrude L. M. Thomas, Victoria Varney, Edith Wyatt, Walter H. Allen, George A. Hoare, *Alfred G. C. Nunn, Edgar Paterson, Francis G. Reardon, William A. Rogers.

Monmouth.—Ethel L. Davis.

Norfolk.—Maud A. E. Burrage, Emily A. Housley, Mary MacLellan, Alice E. Rimmer, Victor A. Boyce, Francis V. Doggett, Percy G. Eliot, Charles H. Sparkman, John W. Whittaker.

Northampton.—*Frederick C. Coupland.

Norwich City.—Mabel R. E. Blake, Beatrice Couzens, Charlotte E. Gould, Bertha G. Tooke.

Notts (City).—Annie L. Bradbury, Harriette Coope, Johanna M. Glennon, George P. Barrow, William Briggs, Arthur Smith.

Plymouth.—Marie A. Moore, Kathleen F. Neve, Rhoda M. Wyatt, John H. Moore, Edwin H. Ryder, Arthur J. Worth.

Salop.—Sarah E. Davies, Alice M. Howells, Alice M. Jones.

Stafford, Cheddleton.—Lizzie C. Young, Arthur J. Knight.

Stafford.—Millie Gerrard, George Barker, Frank A. Davis.

Sunderland.—Margaret E. Bailey, Annie G. Press, Ida Pybus.

Surrey, Brookwood.—Rachel Chandler, Edith S. D. Denning, Martha M. McLeod, Daisy J. Smith, William H. Arthur, Herbert Coleman, James A. Hunt, Joseph Seppings, Thomas W. Willoughby.

Surrey, Netherne.—Dorothy Pitman, Teresa K. Quinn, Alice L. Ward, Charles E. Bruford, Arthur F. Thornton.

Sussex, Hellingly.—Jessie F. Challenor, May P. George, Rose Giles, Rosina Holmes, Hilda Peddle, Thomas A. Doick, William J. King, Francis B. K. Knight, B. Mitchell, George S. Wallis.

Warwick.—Alice Maud Hill, Jane Murray, Edith Mary Rainbow, Alfred Hicken, Isaac Hinde, Ben Watts.

Worcester, Barnsley Hall.—Mary W. M. Goddard, Winifred L. Porter, Marion Whitehouse, Ernest J. Manton.

Yorkshire, Beverley.—Harry Crowe, Robert Poole.

Yorkshire, North Riding.—Florence Morgan, *Walter Spence.

Yorkshire, Scalebor Park.—Margaret Ellis, Margaret Wilson.

Yorkshire, Wadsley.—Louie Bamforth, Hilda R. Barfoot, Albert Bisby.

York.—Elsie Boynton, Lucy Clare, Leonard Knight, Sarah E. Mant, *Annie McKeon, Elizabeth Pickering.

Bethlem Royal.—Margaret H. Smith, Marian Tweeddale.

Bootham Park, York.—Janet Guthrie, Helen T. Newbound, Michael J. O'Rourke, Harry Rawson, Oscar Shaw.

Camberwell House.—Helen Buckley, Dorothy E. Cullum, Elsie Everett, Winifred D. White.

Coppice.—Sarah Griffiths, Jessica Waterfield, Arthur E. Elsworth, Frederick J. Woolhough.

Holloway Sanatorium.—Clara C. Lovelock, Harry Evans, Charles W. J. Barkham.

Manchester Royal.—James Loftus, Frank Wood.

Middleton Hall.—Mary J. Hodgson, Louie Lennard, John W. Kemp.

Moorcroft House.—Fanny Joyce.

Peckham House.—Emily E. Salmon, George H. I. Bates.

Retreat, York.—Julia G. Thomson, David I. Roberts, *Fred Wilson.

St. Andrew's Hospital.—Delia Gibbons, Bessie Olive Goode, Bridget McNally

Thomas B. Hawker, Harold G. Bartlett, Joseph H. Faulkner, Harry B. Furn, T. A. Rickard, Walter Stafford.

Ticehurst House.—Christine H. Robertson.

Warneford Hospital.—Frederick C. Redding, James H. Tutty.

Aberdeen City.—Jane Beaton, Mary McCurrach, Isabella G. Wilson, George R. Burnett, William W. Burnett, William Grant.

Aberdeen Royal.—Anabella Davidson, Annabella Duncan, Alice M. Fraser, Janet R. Sorrie.

Argyle and Bute.—Isabella Mackay, Mary McAulay, Mary McLachlan, Elizabeth Mitchell.

Ayr.—Robert F. Geddes, James Paterson.

Crichton Royal Institution.—Jean Callander, Dorothy I. McDonald.

Edinburgh, Craig House.—Margaret Bertram, *Agnes Cruse, Annabella Gentles, Christina Henderson, Johan Sinclair, Mary Sinclair, Harry Jackson.

Edinburgh Royal.—Mary Lucas, Janie K. McCargo.

Elgin.—John Barron, Charles Robertson.

East Lothian.—Mary G. McDonald.

Fife and Kinross.—Eliza Allan, Annie W. Anderson, Nellie G. Hampton, Agnes C. Mather, Winifred Young, John Grome, James MacKay, George Samson, *Glasgow Gartloch*.—*Jennie L. Mitchell, Elizabeth C. Walker.

Glasgow, Royal.—Margaret L. Fraser, Ada Mason, Mary McLellan, Teresa F. E. O'Hara, Brigid Sharkey, William Inglis.

Glasgow, Woodilee.—Jean Begbie, Annie Campbell, Mona Cartwright, Nellie Edwards, *Sarah Johnston, Mary Kelly, Margaret Kennedy, Alexandrina Melville, Annie Mulgrew, Jean O'Rourke, *Margaret Sim, *Anna E. Thomson, Elizabeth M. Wilkie, Cornelius J. Brooks, Murdoch Cameron, Norman Corbett, Thomas McAuslan, Patrick McTernan, David McWilliams, Edward Moy, Andrews Orr, Thomas Taylor.

Govan.—Jean M. Morrison, Mary Stewart, James Ferguson, James Rae.

Inverness.—Catherine S. Stevenson.

Lanark, Hartwood.—Mary J. Titterington, Margaret Winning, Donald Graham, David H. Jackson.

Montrose Royal.—*Mary Balnaves, *Mary Franco, *Florence M. Henry.

Paisley.—Duncan Campbell, *James Cruickshank, Thomas Matthew.

Perth, James Murray's Royal.—Jessie Duff.

Renfrew.—Norman MacKinnon.

Roxburgh.—Margaret Cameron, Lily Grant, Donald V. MacDonald.

Stirling.—Mary M. Clapperton, Mary Courtenay, Mary Kennedy, Margaret McLennan, *Elizabeth Powrie, George Stewart Cameron, John Macdonald.

Armagh.—John Devine.

Belfast.—Johanna D'Arcy, *Helena Feury, Catherine Magee, Adina Martin, Maud Moffat, Alexander Murray, Teresa Murray, Martha E. Rowland, Minnie M. Stoops, Agnes Young, William J. Flanagan.

Dublin, St. Patrick's.—Mary Corcoran, Ellen L. Mills, Samuel F. Newman.

Dublin, Richmond.—Catherine Dunne, Jane Lynch, Joseph Kerrigan, John J. Sheridan.

Mullingar.—Margaret Tiernan, John Creamer, Thomas Fry.

Omagh.—Bridget Donaghey, Catherine Kelly, Catherine M. McCreary, Rose Sharkey.

Portrane.—Thomas Byrne, John Callaghan, Michael Connolly.

Cardiff.—Mary Christie, Mary A. Jourdan.

Denbigh.—Richard Blythen.

Glamorgan.—Elizabeth Daley, Letitia Davies, Martha John, Mary E. Phillips, Annie Roberts, Gertrude Wilkes, Louis Jones, Edward P. Kiernan, Edwin T. Williams.

Newport.—Ada V. Coombs, Martha E. Lewis, Edith Maddocks.

South Africa, Grahamstown.—Louis Melville Kemp.

South Africa, Pietermaritzburg.—Robert Henry Brash.

South Africa, Pretoria.—Martha Jane Mandy, Paulina M. Redlinghuys, Gundina G. P. Zeederberg, David Howard de Villiers, Charles F. Marais, Sarel Francois Oosthuizen, Francis Statham, Frederick William Sutton.

South Africa, Valkenberg.—Martha Brider, Elizabeth C. Dreyer, Martha Sophia J. van Heerden, Catherine van Jarrsweld, Martha Letitia Koch, Dirkie Connelia

Marincowitz, Myrtle Martha du Plessis, Catherine Visagie, Jacoba M. van Zijl, Johannes Andries Burger, Hendries Stephanus Lotter, S. F. Steenekamps.

FINAL EXAMINATION FOR NURSING OF MENTAL DEFECTIVES, MAY, 1921.

List of Successful Candidates.

Stoneyettes Institution, Chryston.—Reginald Clarke.

M.A.B., Darenth.—Ada Crawley, Dora L. Dunn, Maud Morley, Louisa Radley, Amelia Stone.

Royal Scottish National Institution.—Janet Bryce, Margaret Macrae, Annie W. Rankine.

NOTICES OF MEETINGS.

Annual General Meeting.—First week in July, 1922, at Edinburgh.

Quarterly Meetings.—February 23rd, 1922; May 25th, 1922.

South-Western Division.—April 28th, 1922, at the Dorset County Mental Hospital.

Irish Division.—April 6th, 1922; July 6th, 1922.

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THE JOURNAL OF MENTAL SCIENCE

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APRIL, 1922.

VOL. LXVIII.

Part I.—Original Articles.

Ends and Means of Psychiatric Research.⁽¹⁾ By Prof. EMIL KRAEPELIN, of Munich.

THE story of the founding of the German Institute of Psychiatric Research reveals the astonishing fact that a great enterprise, requiring millions of marks, and serving in the first instance purposes of pure science, has been carried into execution, even amid the tumult of the war, in little over a twelvemonth. The preparatory work dates back, of course, to the pre-war period, but the scheme had to give place to the great task of the day, until, on January 6th, 1916, with the subscription of the first half-million marks, the possibility of its materialising came suddenly within reach. Six months later the future of the new Institute was firmly assured, and on February 13th, 1917, His Majesty King Ludwig was able to grant the charter that gave it being. On June 10th, 1917, was held the first public meeting at which the position of the Institute with regard to the development of our science could be made plain, and in April of this year ⁽²⁾ five of the seven departments originally projected had taken up their work under the leadership of eminent savants. The others will follow as soon as the circumstances of the time permit a satisfactory solution of the problem of personnel.

Quietly has the great result manifest in these facts been achieved, without publicity, without aid of the press, and without any organised appeal for funds. It would not be incorrect to say that what has thus been enacted has to some extent occurred spontaneously. The clear-sighted determination of a few persons sufficed to raise the requisite means, smooth the ground, put aside obstructions and rear the edifice. Without their energy and willing sacrifice our object, of course, could

⁽¹⁾ Translated by Sydney J. Cole from "Ziele und Wege der psychiatrischen Forschung," *Arbeiten aus der Deutschen Forschungsanstalt für Psychiatrie in München*, Bd. i, December, 1919 (Sonderdruck aus der Zeitschr. f. d. ges. Neurol. u. Psychiat., Orig.-Bd. xlvi, Heft 3/5). [The Journal has acquired the sole rights to publish this article in the English language.—Eds.]

not have been attained. But the rapid and almost effortless accomplishment of this great work would still have been impossible were it not for the conjunction of another circumstance. The time must have been ripe for the idea thus realised. The establishment of a psychiatric research institute must have become an obvious need of the hour.

That it is so is unquestionable. With oppressive weight the knowledge has forced itself on all public bodies concerned with lunacy that they have to do with a monstrous burden, imposing ever greater demands on the thrift and productivity of our people—experience eloquently set forth in the well-known address of the Prussian Provinces (September 25th, 1912), in which the establishing of a research institute for psychiatry was recommended; and individuals innumerable have had occasion to feel, in their own homes or in the circle of their acquaintance, the dire calamities mental illness can bring. That soundness of mind is no less important for a nation's productive and resistive capacity than physical fitness has been bitterly brought home to us by the affliction of war. To hold before our eyes the necessity for the struggle against mental disease there could hardly be a fitter moment than this, in which our whole existence is dependent on our knowledge and abilities, our powers of adaptation and self-discipline, the strength of our will and the steadfastness of our resolve.

But not even the clearest perception of the dangers with which mental diseases threaten the future of our people, any more than the strongest determination to avert them, would enable us to discover by what means they can be repelled, were not our science also ripe for taking up this task with a prospect of success. Only a few decades ago it would have seemed hopeless, nor would then the most opulent resources have enabled our science to advance one step in the desired direction. Not till lately was a point reached from which any sure progress in the knowledge of the causes and nature of mental disorders could be made. But to-day many lines are open to us by which these questions can be approached, and we have also the implements for commencing the work. After a hundred years of hard struggle we have arrived so far as to be able to draw up plans that are rich in promise, if to the right men are granted resources, and the freedom to devote their whole energy to the task.

The instituting of a thorough inquiry in our department of science proceeds from the assumption that we have to do with processes of veritable disease—processes that will admit of recognition and be distinguishable with certainty from one another. What at the outset presents itself to the alienist's observation is a jumble of pictures, some of them stable, others variable, compounded of the most miscellaneous details. The attempt to reduce to order these multifarious exhibitions has led inevitably, as in other branches of medicine, to the grouping of

cases according to their most conspicuous outward signs. So, down to our own day, almost all classifications of mental disorders have started from the fact that some patients are depressed, others cheerful; that some are dull and self-absorbed, others restless, noisy and violent; that here we seem to see a complete absence of mental operations, there a restriction of morbid ideas to some particular subject, and so on. As for anything beyond this, there was at most a distinction between congenital and acquired weak-mindedness—the first shy approach to invoking history of onset for the purpose of discriminating between different disease forms.

Innumerable have been the attempts to classify in that manner the given cases, and so to arrive at types. But again and again it has been found that the diversity of the phenomena makes mock of such imprisonment, that the mixed and indefinite forms thickly overgrow the simple types artificially stripped of their bark, and that a close examination leaves but few cases that will go unmistakably into this or that pigeon-hole. Observers, of course, have not been blind to the barrenness of these incessantly renewed attempts. In particular, they soon saw that there can be no distinctiveness in cheerful and gloomy moods, for one can be directly exchanged for the other in the same patient. This led them, notably in France, to split up disorders showing marked variations of mood into a number of forms, according to the various kinds of sequence which the cheerful, gloomy, and normal periods exhibit.

A further breach in the conception of mental disorders as mere divergences from a psychic norm was made by the discovery, in the twenties of the last century, of a form of illness characterised by *post-mortem* appearances—by chronic inflammation of the substance and membranes of the brain. This illness, distinguished first in France, is general paralysis of the insane, which we now know to be in the strict sense a disease. Here, where it can be shown by *post-mortem* examination of the brain that a given case is referable to a definite morbid process, it is plain to be seen that the phenomena during life are not by any means uniform, but extremely diversified. It is remarkable how long this clear proof of the deceptiveness of outward appearances, as an index to the morbid process, remained without appreciable influence on clinical investigation. The impression made by the obvious mental abnormalities was so strong that observers were unable to rid themselves of it.

Another promising opening was offered when Guislain suggested, in 1838, that the various forms of insanity might to some extent be regarded as efforts of the diseased brain to make good a gradually spreading damage. The clinical aspects thus became stages in a progressive affection whose features took shape from the disposition of the patient. Although this doctrine, later accepted by Zeller and Griesinger,

does not prove to be sound, it contains the apt notion that to a morbid process there corresponds a definite course in which a number of changing aspects may be displayed.

The decisive turn to our mode of viewing these things was given by Kahlbaum, who not only emphasised in the strongest manner the distinction between the manifold changing aspects that attract our immediate attention and the morbid processes that pursue their regular course beneath, but showed, in 1874, by the example of katatonia, how varied, at different periods of the illness, the spectacle presented by one and the same patient can be. It was now clear that, in spite of all diversity of phases, it is possible by a more refined observation to trace through the entire course certain characteristics by which the inner connection of the several stages can be demonstrated. Thus the important result was reached that, from a given present state, definite conclusions can be drawn respecting the stages that have gone before and the stages that are likely to ensue—the only certain indication that a genuine morbid process has been unveiled. The same holds good for hebephrenia (juvenile insanity), already described three years earlier by Hecker at Kahlbaum's instigation.

With these two forms of disease, and the general paralysis that had served as their prototype, a start was made in the discovering of genuine morbid processes. To them, since Kahlbaum's mode of view has overcome initial opposition and gained more and more acceptance, a number of similar finds have been added. Above all should be mentioned the long-known but little-regarded diseases produced by poisons, particularly delirium tremens and those other alcoholic mental disorders that have only of late years been closely studied, and the insanity brought about by cocaine; the various forms of mental disturbance occurring in febrile diseases, in injuries of the skull, in uræmia and eclampsia, and in cretinism; the great group of manic-depressive disorders, genuine epilepsy, the arterio-sclerotic, senile and syphilitic brain affections, hysteria and the manifold forms of degeneracy, and still more numerous smaller groups that we have reason to regard as expressions of definite morbid processes.

Many of these diseases, of course, are still very imperfectly understood and insufficiently distinguished; yet a large proportion of them offer very useful points of attack for a systematic investigation of their causes and nature. So long as disease forms were set up with a sole regard to outward aspect at a given moment, an investigation of the conditions that produce them could naturally never lead to any useful result, for we had always to do with a mixture of the most heterogeneous processes, and no uniform causes were present. Hence the hopeless obscurity of the old teaching, which for every disease made all possible causes responsible, and on the other hand ascribed to the same injurious

factors the most diverse affections. To-day, however, we start from the principle that behind similar morbid processes there must somewhere or other be a similar noxious influence that has produced them, and that from the observed effect we can infer a definite cause. Obvious instances of such a connection are tipsiness, which we set down straight-way to alcohol, general paralysis, for which a syphilitic basis can always be demonstrated, and cretinism, which is invariably due to a failure of thyroid action.

At the same time, of course, we have always to take into account the influence of mental and bodily peculiarities of the individual. Such peculiarities can completely inhibit the action of the morbific factors, or they can aggravate it; they can give a special tinge to the clinical aspect, allow of the appearance of aberrant forms, and permit unusual developments in the course of the illness. It appears, however, that the influence of individual peculiarities does not very materially modify the leading characteristics in mental disorders produced by noxious action from without. It is probably quite otherwise in the misty sphere of diseases arising from inner causes; at any rate, there is here an immense group of forms whose features are determined solely by personal disposition.

The crudest and most primitive procedure for establishing a connection between cause and effect consists in observing the time-succession of two events. It yields more or less reliable results only where the disorders follow immediately upon powerful noxious influence from without—for example, head injuries, poisonings, febrile illnesses, and childbirth. But even here, apart from the possibility of mere chance coincidence, it can often be seen that the outward occasion was not the true cause of the disease that has broken out; it has but let loose a malady already prepared by inner causes. This holds good for a not inconsiderable proportion of mental disorders following febrile illnesses. It applies in even greater degree to puerperal insanity. The mental illnesses of women recently confined were formerly regarded as all of one sort—as the immediate effect of the revolutionary changes then taking place in the organism—but wider experience has shown that we have to do with a number of totally distinct forms of insanity, of which comparatively few have any strict causal connection with childbirth.

The establishing of a causal connection becomes even more precarious if damage and illness are separated by a wider interval of time. The general public, like the psychiatrists of former days, are only too ready to blame anything specially striking that has happened in the past, no matter of what sort, for the mental disorder that has now arisen; they profess to trace visible effects of it right back to the time of its occurrence. To such caprice there are no bounds. This hasty connecting of one impressive incident with another is

largely responsible for the terrible confusion in the teaching of causes, in psychiatry as in other departments of medicine. Not uncommonly, the first indications of the commencing illness, or even its consequences, are taken for its cause. This is especially the case with emotional excitements, supposed to be so powerful in producing insanity. We now know that in mentally vigorous people they can hardly ever lead to morbid disturbances. In unstable and excitable persons their morbid influence is greater, but even in them the disturbances produced have mostly a brief and favourable course. In the vast majority of cases the apparent emotional cause—the disappointment in love, the worry, the grief, the indignation or the annoyance—proves to have been immaterial to the production of the illness, or was its first indication.

The difficulties here pointed out can be surmounted only by the search for unitary morbid processes. These we may assume always to arise from similar definite causes. Apart from certain clinical features often difficult to apprehend, the data for the recognition of such a process are chiefly its course and result, and, in certain groups, the *post-mortem* appearances. Whenever a true morbid process is ascertained, our understanding of the causation is invariably clarified, even if only so far that we become able to reject false causal attributions. We see, for example, that a certain definite morbid process is frequently associated with a particular damage; but if we see that far more frequently this damage has no such consequence, we obviously cannot regard it as the true cause. By such experiences our knowledge of the true causes of insanity has been enormously increased. In a great number of morbid processes the physical and mental causes are now so well known that from the clinical picture the nature of the preceding damage can be inferred. This is especially true for the illnesses produced by poisonings and by syphilis, for uræmic deliria, cretinism, hysterical disorders, traumatic and war neuroses, and, with certain limitations, the acute forms of insanity produced by head injuries and febrile illnesses. Here also, of course, there are many pitfalls; for, owing to gradual shadings and to the personal colouring of the phenomena, the relevance of different clinical pictures to a particular morbid process is not always easy to perceive.

Even more reliable than the mental states there are often physical signs from which, in certain circumstances, the nature of the malady is immediately evident. Chief among these are the Wassermann reaction, the cell-count and albumen content of the spinal fluid, and inactivity of the pupils to light; from these we may safely infer the presence of syphilis and its invasion of the brain and spinal cord. Important signs also are the neuritis in alcoholism, the myxoëdema in cretinism, the increase of the residual nitrogen of the blood in

uræmia, and many others. The keen desire to increase the number of such aids has led, moreover, to an extensive application of the Abderhalden dialytic procedure to psychiatric questions. From the circumstance that the blood fluid in certain cases exhibits the power of disintegrating the tissue of such or such organs, there is believed to be some ground for assuming that the latter are materially concerned in the morbid process. Unfortunately the extravagant hopes that have been set on such findings have not been realised; it does not appear that from those disintegrative phenomena we can draw any far-reaching conclusions. The process itself being extremely wayward and unreliable, the deductions from its results have but a weak foundation.

Although the improved resources of advancing science have served to clear up many points respecting the ways in which mental disorders are produced, there is still a very wide sphere in which we are no nearer to a solution of the question—a sphere in which, indeed, we feel less assurance than before, as connections that on a rough examination seemed obvious have turned out to be deceptive. This applies especially to the bulk of the disorders assigned to dementia praecox and manic-depressive insanity. We know well that inherited disposition plays here an important part, that the frequency and the forms of the disorder are greatly affected by time of life, and that noxious influences from without, emotional excitements, childbirth and bodily illness have sometimes a precipitating effect, but of the causes that really engender the malady we are ignorant. It is much the same with epilepsy, to whose production influences deleterious to the germ certainly often contribute, though of the nature of their action we can give no account. We are equally in the dark as to the origination of degenerative insanity, of the various defects of personal disposition that lead, as life goes on, to derailment in this direction or that, and for the most part also of states of congenital weak-mindedness. Here, too, we have to take into account hereditary factors and germinal injuries, but also manifold morbid processes that invade the brain in youth.

The disclosure of the causal relations is an important step towards an insight into the essence of the morbid processes, and an understanding of the changes that take place during the malady and represent its elements. Even if we have recognised with certainty the causal dependence of a mental disorder upon a particular damage, we may still be far from understanding their deeper connections. A typical instance is afforded by delirium tremens. So certain is it that this is produced through prolonged alcoholic excess that from the clinical picture we can tell at once what the cause is. But delirium tremens is no direct expression of alcohol poisoning, for its phenomena are quite different from those presented by this; to tipsiness it has not the

slightest resemblance. Here we get a hint from the striking relationship it shows to the deliria occurring in uræmia—retention of urinary constituents in the blood. In delirium tremens there may similarly be an auto-intoxication, by metabolic products whose formation or insufficient excretion is conditioned by the chronic alcoholic state of the body. This supposition, which of course needs verification in detail, would remove an important objection to the opinion here maintained that it is possible, even in our department, to reason from particular morbid signs to particular causes and reversely. The multifariousness of the mental disturbances brought about by alcohol is often adduced against this opinion. Close examination shows, however, that among effects of alcohol we must distinguish between two series of disorders, exhibiting apparently quite different causal relations to the poison. To the first group belong the ordinary and the excited forms of tipsiness, alcoholic hysteria, with perhaps also the so-called habitual epilepsy of drunkards, as well as simple alcoholic thickheadedness and alcoholic jealousy; to the second, delirium tremens, alcoholic delusional insanity, Korsakoff's psychosis and alcoholic epilepsy. The first-mentioned forms can be traced without much difficulty to the direct action of the alcohol. For those in the second group (which occur only after prolonged heavy drinking) this is not possible; and since among these we observe transitional and mixed forms, they have all perhaps a common mode of origin through poisoning with products of a morbid metabolism to which chronic alcoholism gives rise.

Similar difficulties confront us when we try to picture the relations of general paralysis to syphilis. That syphilis can attack the brain was known long before the origin of general paralysis was divined. Brain syphilis, however, is a disease that is in many respects quite different from general paralysis. The latter usually arises much later after infection, and is almost always fatal within a few years, while brain syphilis often leads to a protracted mental illness, and may end in complete recovery. Moreover, the behaviour of the spinal fluid, the *post-mortem* appearances and the susceptibility to treatment differ in the two cases, and the two conditions can usually be distinguished by their clinical aspects. In spite of their common origin from syphilis, their modes of production must therefore be in some respect dissimilar; but how it happens that in one person a brain syphilis develops, and in another a general paralysis, the vigorous investigations directed to this point have not yet been able to explain.

From such examples, which could easily be multiplied, we may learn what a long way it is from a bare recognition of causal connections to a real understanding of them. Even where at a first glance things seem clearly displayed, on close inspection numerous difficulties present

themselves. We know definitely that failure of thyroid action in early life produces cretinism, and that we can prevent this by timely administration of dried thyroid; but we still do not know what noxious influence causes the atrophy of the thyroid in endemic cretinism, or what those ingredients of the thyroid secretion are whose deficiency occasions the cretinous disturbances in the growth of the bones, the cutaneous and metabolic changes, and the weak-mindedness. With every attempt to penetrate deeper into the nature of the morbid processes we are confronted with fresh questions, for whose solution many sciences must be invoked.

The problems thus arising demand in the first place a study of the effects which a morbid influence produces in the body, up to the point at which it attacks the brain. We must follow this process carefully through all its intermediate links. The final aim will then be to make clear what alterations the malady eventually produces in the structure and function of the brain tissue. Here we have to consider not only the destructions and impairments produced by the last link of the morbid process, but the defensive and compensatory efforts of the diseased parts, and the results that ensue in spheres dependent on these. It is needless to say that for an approach to these questions we have nowhere yet got beyond the most meagre preliminaries.

But until we have obtained some insight into the essence of the morbid processes, it will be difficult to take up, with any prospect of success, the second great problem that awaits us—the question what relations exist between the ascertained disturbances of brain function and the mental changes presented in the clinical pictures. To this highest and perhaps never quite attainable end there is still a further distance to travel. The connections between the normal mental life and the brain processes that constitute its basis must first be made clear. For the requirements of our science we can be content with purely empirical demonstrations, without touching the ultimate fundamental question of the essential nature of the connection. The immensely developed structure of the brain and especially of the cortex, the facts of ontogeny and comparative anatomy of the brain, the study of focal brain lesions and malformations, and the results of experiments on animals, show more and more clearly that, corresponding to differences in structure of individual portions of brain and differences in their arrangement, there must be differences in function. In other words, we have every ground for assuming that the brain is composed of an immense number of individual implements and mechanisms, all of which possess definite importance for the fulfilment of the total function. Moreover, it is extremely probable that manifold safeguards are provided, so that the same purpose may be achievable in many independent ways and with different means, yet without its being

possible, as was formerly supposed, for one part to take over, in the strictest sense, the function of another. We need but remember that speech symbols can be apprehended not only through the medium of hearing, but by vision, and by perception of the appropriate speech-movements, and that disturbances of bodily equilibrium are notified through vision, through sensations from muscles and joints, and through the semicircular canals.

If these conceptions are just, it would be necessary, in order to understand the relations between brain function and mental expression, to obtain first a clear picture of the fashion in which the brain is constructed of its countless individual implements and groups of implements. It must then be ascertained what purposes all these different implements serve, how they act together, and in what ways they are dependent one upon another. For working out these questions, however, we require a deep and detailed knowledge of our mental life. We must know from what primitive constituents the mental processes are built up, and how they combine with one another for higher and more elaborate performances. It would then become possible to discover more general and perhaps gradually more detailed relations between brain structure and mental operations, in the development of the growing man, in the animal series, and, in the direction that has of late been followed with some success, the thorough investigation of the peculiarities exhibited by different races and different individuals. But the most fruitful source of knowledge will be the circumscribed brain lesions offered by experiments on animals and by an imposing array of clinical material. We know that many poisons have the peculiarity of seizing upon quite definite territories of brain, and of causing mental disturbances that correspond to these and are likewise sharply defined. There is always the possibility that the connections between circumscribed portions of brain and particular mental operations may in that way be revealed. But our object is much more approachable by investigation of the defect phenomena resulting from brain injuries, if we can ascertain also what regions of the brain are affected in the particular cases. The war has unhappily multiplied such cases to a frightful extent. If we could manage to utilise the experience gained from these cases, so as to widen our knowledge of the relations between particular brain regions and particular expressions of mind, the unspeakable misery of brain wounds could at least contribute towards arming our science with weapons for combating future ills.

By such researches the foundation would be laid for a knowledge of the connection between morbid changes in the brain, so far as they leave demonstrable traces, and the morbid phenomena observed during life. *Post-mortem* investigations in cases of insanity have hitherto yielded at most a disclosure of the occurrence of this or that morbid

process in the brain, with perhaps some general idea of its greater or less extent : but as to what members of the brain structure are implicated, and what effect their implication must have upon the mental life, we still know practically nothing. At the present time it is therefore quite impossible to draw, from the character of the disturbances during life, any conclusion as to the seat and extent of the morbid processes, if we except certain gross disturbances of sensory perception, of voluntary movement, and of understanding and use of speech.

It will certainly not be easy to advance along the road here indicated. Besides all other difficulties, residing in the nature of the thing, we shall have to reckon with personal peculiarities, by which we may easily be misled, and which in the immensely elaborated structure of the brain should find their freest expansion. As has already been pointed out, we have at our command, for achieving a purpose of any sort, several different brain mechanisms, of which sometimes this one is preferred, being perhaps more finished, and sometimes that. The impairment or failure of a particular performance can accordingly be conditioned by a disturbance, now in this brain region, now in that. We may mention, by way of example, the personal differences in respect of preferential use of visual, auditory or speech-movement presentations, for the formation of concepts and for the fixing of memory impressions. But far beyond such elementary forms of mental work there are differences in other personal inherited or acquired characters, in endowment or deficiency in circumscribed spheres, wide or narrow, in the operations of conception, memory or intelligence, and in temperament, volitional capacity and accomplishments. The problem of estimating the importance of personal peculiarity, not merely in the clinical picture but in relation to distribution of brain changes, certainly appears, so far as we can see at present, quite insoluble. Meanwhile, the considerations here adduced are to be regarded as indicating, not an attainable end, but a general direction in which scientific work is possible.

If from these highest ultimate problems, so inaccessible remote, we turn our gaze to the prosaic world of facts, we see a number of paths that we can already follow with a hope of gradually penetrating further into the subject of our science. First, we must persist in our endeavours to find out genuine processes of disease, since they only can provide the basis for future research. Among cases that do not admit of being ranked with already known and firmly established forms, we shall be able to find groups of cases resembling one another in mode of onset, phenomena, course and result, and, where the point arises, in *post-mortem* appearances. Such cases must be tentatively gathered into a new disease form. Experience shows that, to such a provisional group, other cases always attach themselves—cases which, though somewhat

different, exhibit in their general behaviour a similarity to the type that has been set up. Since such aberrations are observed in all unitary affections, it is to be assumed that at least some of these cases will have to be allotted to the original group. For a final decision we must be guided by the upshot of the case and, in the event of death, by the finer *post-mortem* appearances of the brain ; also, in certain circumstances, by the history of onset, but only in a minor degree by the details of the clinical picture, for these, as we know, can in the same morbid process be quite different and may even appear contradictory.

If in this way the original picture has widened itself, it will have to be proved where its limits lie. We keep adding, by way of trial, fresh similar cases, throwing them out again if a divergence in their outcome and *post-mortem* appearances shows them to have been included erroneously. Disease pictures more or less divergent in their expressions are in this way gradually comprehended in a unity, so that we are enabled to make at least a definite prediction. Probably we have succeeded thus in grasping a unitary morbid process ; we have certainly succeeded if we find that from the changes demonstrated in the brain after death the general features of the antecedent clinical picture can, as a rule, be correctly inferred. Among the various clinical phenomena, certain signs, perhaps inconspicuous, will usually by this time have been noticed, common to all cases in all stages of the malady, and hence characterising in some degree the newly constructed disease form. If we have succeeded in discovering such leading signs, often demonstrable only by some special artifice, we may perhaps become able to include, in the new disease form, cases that in course and in outcome diverge from the main group, since the same thing occurs with morbid processes that have been surely defined. We must proceed, of course, with extreme caution. A really satisfying assurance in the recognition and demarcation of a newly distinguished form of disease can be reached only by long experience and after many disappointments. Our errors of prediction are really the handholds for our advance. They show us that we have over-estimated the worth of some particular sign, misconstrued another, and overlooked or insufficiently valued a third. So they enable us again and again to amend our views.

How enormously important for the progress of our science is anatomical investigation of the brain, both in health and in disease, is evident from the foregoing considerations. What we require above all is a clear characterisation of the *post-mortem* appearances of the brain in as many morbid processes as possible. That the indispensable pre-requisite for this is an exact knowledge of all component parts of the tissue, and of their structure in all its details, including chemical constitution, needs no elaborate proof. But even when this condition is approximately fulfilled, and when the morbid abnormalities can thus

with certainty be detected, new difficulties arise, especially as the microscopic appearances in an individual case show us, in every instance, only a particular state of the tissue, not how it has come about nor how it would shape itself further. Side by side in the same brain there may doubtless often be seen portions which exhibit the same morbid process in different stages of its development, so that by a comparison of these a picture of the succession of the changes can be obtained; but in other instances an attempt must be made, from the various fortuitously available cross-sections of the morbid process, to deduce a longitudinal section—not always an easy thing to do, for the sequence, and even the relevance, of the several appearances may be very dubious.

Even if he has succeeded in following a morbid process through its changing stages, the anatomist is still in danger of confusing different kinds of morbid processes, or of failing to recognise the essential oneness of pictures outwardly differing. Since, in the morbid changes, a whole series of tissue-elements connected with one another can be affected sympathetically, various pictures may be produced, differing as this or that element is in greater or less degree affected, and these pictures are prone to alter in the course of the same morbid process. On the other hand, it is sometimes extremely difficult to perceive the dissimilar significance of similar anatomical findings, for these consist, time after time, in alterations of the same tissue-elements. The sources of error that here confront us resemble those that we are to beware of in interpreting the mental phenomena, where likewise we have to gather into a unity appearances that are diverse, and to separate others that are seemingly alike. In the anatomical sphere, as in the clinical, a review of the whole course of the changes, so far as this is possible, may afford us some fixed points. A deeper insight also into the finer details of the morbid process, particularly by aid of stains and chemical reactions, will often materially facilitate the unification of things that belong together, and the separation of those which, though similar, are essentially different. And lastly, a most important part in the elucidation of the anatomical changes is that which is played by experiments on animals. However little it may be possible to identify human with animal brain-functions and illnesses, yet, from the effects produced by particular noxæ in the brains of animals, conclusions can be drawn as to the issue of like processes in man. We are thus enabled to trace accurately the course which the changes pursue, and to apprehend the connection of their several stages. The acute and the permanent effects of manifold poisons, the results of concussions and demolitions, and finally, the changes evoked by pathogenic agents or by ablation of organs—whatever morbid processes, in short, are producible artificially—can in this way find elucidation.

Specially important in this connection is the study of the injuries brought about in nervous tissue by the spirochæte of syphilis. It appears that by experiments on animals some part of these changes can be imitated—those in which the so-called brain syphilis consists. Of the metasyphilitic affections, general paralysis and tabes, artificial production in animals appears at present impossible, but in our department, at any rate, an explanation of the conditions for the vitality of the spirochæte, the fates that attend it in the body, the changes it undergoes, and the changes it produces, must be striven for with all our might.

As soon as we have by such means succeeded in defining in detail the anatomical characters that a brain affection exhibits, the far more toilsome work begins of determining its local distribution in the brain. This has hitherto been undertaken only in the rudest outline ; for, besides an exact knowledge of every phase in the course which the changes pursue, it necessitates complete investigation of the whole of each individual brain—a task that demands the utmost skill and patience. Such work, occupying sometimes many months, acquires significance only in proportion to the progress made in demarcating the various cortical regions. We know as yet no more than that in one disease certain lobes are especially affected, in another certain cortical layers, while in others, again, the changes are spread over the whole brain evenly, or are parcelled out in the form of foci. The laying of sure foundations for a doctrine of seat and distribution of cortical affections entails a labour that is immense, but necessary if the connection between brain changes and clinical phenomena is ever to be more fully understood.

Groups of mental diseases exist that certainly or probably have their origin, not in injuries affecting the brain cortex immediately, but in disorders that are seated primarily in other regions of the body, and whose influence on the brain is only indirect. According to our present notions, the part of intermediary in such instances is played principally by the fluid component of the blood. In the composition of the blood, those organic diseases in which the brain is implicated sympathetically must, as a rule, find expression. Disturbances of blood supply, and disordered blood states, have engaged the special attention of alienists from time immemorial. In the production of insanity the characters of the pulse, formerly studied with such care, its frequency, regularity, volume and hardness, may perhaps be rather of secondary importance, and the same may well prove true of blood-pressure, although, like the pulse variations, it bears to certain forms of mental illness a recognisable relationship. We may assume, however, that for the functioning of the brain it is the chemical composition, of the corpuscular elements of the blood as well as of the fluid element, that is chiefly important. Apart from the circumstance that only through the medium of the blood can the brain be reached by poisons introduced from without, and that the

active excretions of pathogenic organisms often take the same route, we know that the blood receives all secretions of ductless glands, besides a great quantity of metabolic products by which the brain tissue can be influenced. Some few such morbid substances appearing in the blood can be indicated offhand; for example, the urinary constituents retained when the renal function is suppressed. Others we can infer from their effects, as in Graves's disease and in cretinism. By reason of its preciousness, comprehensive chemical investigations of the blood in the living soon encounter insuperable obstacles, but a systematic testing of its composition, and, above all, a search for morbid admixtures, must nevertheless be undertaken; micro-chemical methods, in particular, may yield valuable discoveries. It is to the more intimate changes that our attention must be directed chiefly. The new science of serology has shown what a profusion of complicated anabolic and katabolic processes is continually going on in the blood, and how closely these are bound up with the vital conditions of the tissues. The phenomena of immunity, with all its defensive adaptations, particularly in the blood fluid, have opened a wide prospect over new fields of research, which for psychiatry also have probably far-reaching importance.

So far as we can at present judge, it is on the nature of illnesses of internal origin, leading slowly to severe damage or even annihilation of the mental personality, that serological research is most likely to throw light. The onset and course of these maladies, which include epilepsy and that most important of dementing diseases dementia *præcox*, seem to show that in them the influences injurious to the brain arise from disturbances of co-operation of the mechanisms that protect the body from deleterious products of metabolism. The same may be true for some forms of arterial sclerosis. That alterations of a special kind in the behaviour of the body fluids can be evoked by external influences is shown by the Wassermann reaction. The circumstance that the corpuscular elements of the blood can be influenced in a lively manner by processes going on in the serum must attract our attention also to the appearances presented by the blood microscopically, even if for our department the results obtained in this direction have as yet been slender.

For obtaining a conception of the chemical changes occurring in the body there is still another way open to us—that provided by investigations of metabolism. Although by these we can usually observe only the last links in long chains of related processes, it is possible thus to get some clue to gross deviations from the normal, and to infer, from the nature of the dross that comes to light, the disorder that has led to its formation. Owing to the difficulty of extensive investigations of this sort, with which a study of the gaseous interchange should be combined, their employment in our department has hitherto been

quite inadequate. It cannot be doubted, however, that in a number of severe mental disorders valuable discoveries are to be expected from such research. In epilepsy and in general paralysis, in cretinism and in Graves's disease this is already evident. But alcoholic disorders and manic-depressive insanity, with its regular and pronounced fluctuations of body-weight, may equally repay study on these lines, and so, too, may dementia praecox.

In many of these questions it will be possible to import for our enlightenment experiments on animals. Serological research especially is at every step dependent on them—indeed, without their employment on a large scale, altogether impossible. But the study also of the injuries occasioned by deficiency or morbid alteration of certain glandular activities rests principally on the data that animal experiment affords. Without this mightiest of all engines of research we should be powerless before the very questions whose solution offers the best prospect, not only of a deeper understanding of insanity, but of further possibilities for its treatment.

In our department, of course, the step from animal to man is especially great, and on this account a simple translation to man of knowledge obtained from animals is admissible only within narrow limits. Above all, it is impossible, especially from the lower animals commonly utilised for experiment, to form a judgment upon the mental effects of artificial damage. The gap can to some extent be filled by experiments on man himself. By the elaborate methods of experimental psychology we can obtain a more exact picture of the changes produced in the mental life by natural processes of disease. So far as the patient is at all amenable to such experiment, we may be able to make out whether and in what degree the perception and understanding of external impressions, their retention in the memory, the rapidity of processes of thought, the content of ideas, the aptitude for improvement through practice, the susceptibility to fatigue, the release of voluntary impulses, the execution of simple movements, and the finer performances of speech and writing, are affected and altered by morbid influences. Such observations are specially valuable in those rare cases in which the influence at work is fully known, for then we can directly trace the connection between the morbid process and its mental expression. This holds, roughly, for the acute poisonings, for cretinism, for Graves's disease, and for focal brain lesions, particularly those in which there is a circumscribed destruction of tissue. Such minute psychological investigation has already, in cases of war wounds of the brain, yielded many valuable observations. Its only serious drawback is that, in the living, the extent of the brain damage can never be estimated with certainty.

Although, for observations that are unequivocal, we are thus dependent

mostly on chance, we are not entirely debarred from producing mental disorders artificially in man, and from following by psychological experiment the details of their development and results. Of course we must confine ourselves to very slight and rapidly curable disturbances, but even from these it is sometimes possible to draw conclusions as to corresponding disorders of greater severity. Such investigation of the mental effects of poisons, of alcohol, hypnotics and narcotics, tea and coffee, tobacco, morphia and cocaine, has proved especially fruitful. It has thus been shown that the mental states produced by poisons, like those produced by diseases, are distinguished from one another, not so much by any features that are peculiar, as by diversity of combination of recurring details, and that each exhibits a characteristic and distinctive mixture of disturbances. The prosecution of such researches is urgently desirable, for, besides affording a more exact knowledge of toxic effects themselves, it may help to clarify our general notions regarding slight differences observed between morbid states that broadly resemble one another.

Further, it is possible within bounds to imitate experimentally some other kinds of harm to which the causation of mental disorder has in many instances been ascribed, especially overwork (protracted physical or mental activity) and exhaustion, where the overwork is accompanied by loss of sleep and by want of food and drink—factors that should be considered separately. In these directions some researches have already been carried out, by which our conceptions of the mental derangements produced by overwork and exhaustion have been materially influenced.

For the production of a disease, and especially for the moulding of its clinical aspect, the state of the patient himself, apart from the influences at work upon him, is decisive. This is especially true in insanity, for a large proportion of mental disorders arise from morbid disposition, though this may be first set up by unfavourable conditions of life. For our science it is therefore extremely important to obtain a fuller understanding of the various forms of phenomena that constitute human personality. In the first place, the modifications which the individual undergoes in the course of his life find expression in the frequency and form of the mental troubles of the different age-periods. Whereas in early childhood the chief danger is from invasion by infective organisms, in the years of development, and during the work of reproduction, an important part in pathogenesis is played by internal revolutions in the bodily economy. Later, the injuries resulting from life's accidents preponderate, till age itself at last becomes disease. In the child insanity bears in particular the features of an arrest of development, later supplanted by states of confusion with lively emotional oscillations, clouding of consciousness, excitement or depravity; in middle life a tendency to formation of delusions becomes pronounced;

still later a sense of shortcoming ; and finally, a breakdown of the mental powers, especially of memory. Differences are seen also in the behaviour of the two sexes. These naturally are most marked in the interval between development and involution. In the man morbid damage occurs chiefly from alcoholic excess, from syphilis, from head injuries and other accidents, from morphia and cocaine, or from the wearing effect of hard struggle for a livelihood, interfering with sleep and nutrition and exhausting the bodily strength. Woman, on the other hand, is imperilled chiefly by the physical and mental demands of reproduction, by the emotional shocks incidental to love, and by the burden of unhappy family conditions or of an unsatisfied, stunted and defenceless existence.

If the study of these differences, as yet in its infancy, affords so helpful an insight into such conditions for the production of insanity as are inherent in the mental constitutions proper to age and to sex, such study must be widened, that we may know what special psychiatric characters pertain to different races, and what influence is exerted on frequency and form of mental disorder by town and country life, by calling and habits, by culture and civilisation. A grappling with these questions can for the first time be contemplated now that our conceptions of disease are beginning to grow clear, but is still attended with great difficulties. Above all there is the difficulty of extricating in a recognisable shape from the tangle of co-operating influences the results of any particular one. The groups we would compare diverge from one another, not in a single respect, but in many, and are never in themselves so homogeneous as could be wished, for the establishment of sure conclusions. Yet it seems possible even now, from the frequency of the most important forms of disease in individual groups of people, to obtain some general picture, and to draw conclusions respecting the causal conditions operative in them. It needs but suitable workers carefully and patiently to collect the multitude of trustworthy observations necessary for this, and to guard against fallacies by wary appreciation of the various sources of error.

Even more enticing, though certainly more thorny, is the problem of relation of the outward aspects of mental disease to the mental characteristics of different human groups. There can be no doubt, not only that the world reflects itself differently in different minds, but that peculiarities of mental constitution must find expression in the phenomena of disease. It has been shown that in widely separated peoples the composition of the asylum populations can be very different, and the same morbid processes can produce very different pictures. Folk psychology offers here an untilled field for research, from which we may reap, as regards the mental make-up of different races, knowledge undreamed of, which may well become of salient importance for those ultimate psychiatric questions that turn upon the connection

between mental expressions and the structure of the brain. The mental differences are most striking, of course, between peoples most divergent in their descent and in their conditions of life. Unhappily, such investigations, which should range over primitive peoples and highly civilised, over the virile and the effeminate, over the artistic and the intellectual, over those with eyes for the world around and those given to brooding and introspection, have been made impossible, for we know not how long a time, by the world war. And besides the great cost and the linguistic and mental obstacles to a mutual understanding, there is the circumstance that truly comparable results can be furnished only by one and the same observer. Nevertheless such study of the manifold configurations of the folk-mind, in health and in disease, offers tasks for the future as profitable as they are attractive.

Inquiries of this sort are feasible also within a narrower range. Much work has already been done upon the mental affections of the Jews in this country, as compared with the rest of our people, and has yielded notable results. But no one of experience can escape the impression that the composition and behaviour of asylum populations differ a good deal in different parts of Germany. This impression is strengthened for any who have had occasion to visit asylums in other European countries. Although such differences are much slighter than those met with in a comparison of widely separated races, they are probably easier to observe in detail. Here, however, where we are concerned with finer distinctions, the influence of external circumstances will be weightier, so that, in attributing observed differences to constitutional peculiarities of the various stocks and peoples, we shall have to exercise special caution.

The ultimate problem of comparative psychiatry is the determination of the influence of personal disposition on liability to insanity and on the forms that insanity assumes. Of prime importance in both these respects is the original mental make-up of the individual, his intellectual development, his temperamental disposition and the qualities of his will, which to some extent, however, can be altered by his conditions of life. For characterising the personality in all these aspects we must invoke the analytical and mensural resources of psychological experiment. This enables us, in some directions at any rate, to resolve our general impressions into clearly defined details. Least accessible by such means are the emotional processes, though even here, by examination of the various kinds of expressive movement, of speech and writing, and of involuntary expressions, as well as of the pulse, the blood-pressure and the respiration, there is some prospect of obtaining valuable results.

Such investigations will help to provide a survey of the various modes

of composition of healthy personalities. By so determining the range of normal variation, we shall obtain a standard for measuring morbid deviations—a standard that will be of value, not merely for pure science, but for many practical purposes, as for estimating school capacity, military fitness, business talent, and responsibility. A first attempt in this direction is seen in the procedure devised by Binet and Simon for gauging the mental efficiency of children of different ages by quite simple tests, chosen on grounds that are purely empirical. The scale so obtained serves also for determining degrees of feeble-mindedness; and, as it rests on very extensive studies of healthy children, it provides data for estimating grades of mental maturity. Unfortunately it fails after the thirteenth year of life, for then such simple tests, which permit no exact measurements, cannot keep pace with the rapid increase of individual differences arising under the influence of education, of culture, and of experience of life. Moreover, the demands made by these tests are addressed almost exclusively to the intelligence, other sides of the mental life being hardly taken into account. For a really useful insight into the mental performances of a developed personality, we must institute a plan of investigation that will as far as possible comprise the most various performances and be capable of yielding clearly definable results. Thus we may gradually learn, not only to characterise numerically the various grades and kinds of intellectual defect, but to obtain more exact expressions for insufficiencies and aberrances in other mental spheres. Only thus can the important forms of psychopathy that fade into one another be more clearly outlined. This work raises once more the problem of relation of individual mental defects to those physical bases that are to be explored by other means.

The study of causation here obtruding itself presents certain special difficulties, because the noxious influences that have produced the observed result lie far back in the past and are withdrawn from direct inspection. At the outset we can say only that inferiority of inborn disposition is mainly referable to two great groups of causes—hereditary degeneracy and germinal injuries. An explanation of the connections involves far-reaching problems. Studies of heredity in long series of families will illuminate the laws by which morbid dispositions arise and die out. So far as transmission of insanity in man is concerned, our knowledge is dependent on the laborious collection of observations through decade after decade, though, as regards general questions of vital significance, particularly that of inheritance of acquired characters, we can be assisted by experiments on animals.

No less important is the study of germinal injuries. These, we may assume, express themselves not so much in particular morbid dispositions as in general inferiority of the growing creature. We know

that here alcohol and syphilis come especially into account; but probably also all other general injuries of the body, so far as they affect the sex glands, can exert an unfavourable influence upon the new germ. In this connection especially arrests of mental and physical development (*infantilisms*) present a wide field demanding exploration. Since we have reason to suppose that many phenomena of degenerative insanity are to be regarded as relics of primitive adaptations that have not, as in the normal, become thrust into the background or put out of action, the study of developmental arrests from the point of view of their causation by germinal injuries may prove even more fruitful than might at first be expected. Further, we may be justified in ascribing similar effects to damage, not of the sex glands, but of the growing germ in the earliest stages of its development. Unfortunately our knowledge of these things is still very fragmentary.

In this sphere also we must have recourse to experiments on animals. What Nature presents to us in casual and ambiguous observations we can imitate artificially by experiments, arbitrarily modified to eliminate accidental sources of error. Experimental investigation of germinal injuries, if conducted on a large scale, will fix the general lines for the interpretation of observations on man. In particular spheres, especially those of alcoholism and morphinism, blinded and weak-willed men place themselves voluntarily within the range of experiment, so that it needs only a more systematic carrying out of corresponding experiments on animals to demonstrate the nature of the causal relations concerned. In this connection, too, the artificial production of syphilis in animals will furnish data for some conclusions, though the widely divergent behaviour of animals towards the pathogenic agent offers considerable impediments.

The effect of injuries apt to influence unfavourably the mental disposition of man expresses itself, as we may well understand, not exclusively, nor even perhaps most seriously, in the occurrence of pronounced mental illness, but much rather in the numberless more or less striking phenomena of everyday life in which the mental constitution of the members of the community is manifested. Important among these are suicide, crime, vagrancy and prostitution, the frequency and the motives of marriage, the tendency to produce and rear offspring, and the results of education in elementary and higher schools; to some extent also military fitness, certain manifestations of political and religious life, migration from rural districts into towns, business enterprise, and much else. Although factors of other kinds, especially economic conditions, play everywhere a large and often decisive part, original mental state cannot be immaterial, and deficiencies of mass endowment must here and there show themselves in unfavourable issues.

The investigation of such phenomena affords insight therefore into

the metamorphoses of the popular mind. We can conceive that there are two kinds of processes continually going on, the one constituting progressive development of productive and resistive power, the other inducing qualities obstructive to the attainment of life's ends. The study of such manifestations of the popular mind furnishes a means of recognising betimes, and so perhaps of counteracting, untoward and dangerous changes in its behaviour.

The psychiatric importance of such investigation on the large scale cannot be over-estimated. A mass psychiatry, having at its disposal statistics in their widest scope, must provide the foundations for a science of public mental health—a preventive psychological medicine for combating all those mischiefs that we group under the head of mental degeneracy. It will enable us to judge the extent of existing damage, the rapidity of its spread, and the efficacy of the steps taken to meet it ; it will advise us of approaching danger, spur us to action, and reassure us when the menace is averted. Our economic life has long provided itself with organisations for keeping world-wide watch on processes important for its prosperity, and provision has been made also for procuring medical and criminal statistics, statistics of population, and the like. What we in our department need is such collective inquiry as will permit a survey, from a uniform standpoint, of the fluctuations of public mental health.

Until such inquiry is organised, it is impossible to answer the all-important questions in this sphere in which our whole future fate will in a sense be decided. The prosperity of a people depends evidently on whether the injurious or the strengthening influences continue to predominate. In the one case it will sooner or later forfeit its position in the world, in the other it will enduringly flourish. There is notoriously no lack of voices to tell us that the former fate is a necessity of nature; they support their opinion by many historic examples suggesting that the rise of every people is succeeded eventually by a decline. As such a fate must be determined chiefly by the people's mental constitution, it is supremely important to know whether the morbid mental phenomena that in no people are entirely absent keep within moderate limits and can be restrained, or whether they spread and grow.

This matter urgently needs testing, for it has often been supposed that the very progress of civilisation favours the appearance of such phenomena. If this were so, we should be driven to the terrible conclusion that the pursuit of our highest aims leads inevitably to ruin. There are, indeed, several arguments for this notion. It is clear that our civilisation actively opposes the natural selection by which the fittest alone survive and propagate. All the efforts of human pity to preserve the lives of the sick, the weak and the unfit, and to mould

them into worthy human beings, have doubtless the unsatisfactory result that an ever-widening stream of inferior stock mixes itself with our offspring, to the deterioration of the race. The more we succeed in fulfilling our duty to the wretched, the erring and the helpless, the more persistently we impair the strength of our nation.

We must also consider whether the higher culture of a people may not itself directly favour the appearance of morbid mental phenomena. There can be no doubt that the complete devotion to lofty and unselfish aims, required of us by religion and morality, is apt to weaken the basis of our existence—the instinct of self-preservation. So arises the danger that the best and noblest sacrifice their health and strength for those who are by nature most careful of themselves and their own wants; for the former class, the conditions for existence and reproduction tend to become specially unfavourable. In this connection it cannot be overlooked that the church's restrictions on marriage deprive the race of valuable offspring. Moreover, we may assume that an organ of the body becomes more sensitive the more its performances are elaborated and refined; the slightest damage will then induce disorders more striking and harder to make good. Development directed to higher mental aims naturally represses those adaptations that primarily serve for the maintenance of life and health. So, in persons of specially high endowment, we commonly find not only one-sidedness, but also some defect, which can greatly impede the attainment of life's immediate and general ends. The repression of our animal impulses, which are the foundation of our existence, is effected through a striving for something beyond the satisfaction of immediate needs. Those primeval and well-tried guides through the perils of life, the self-preservative and reproductive impulses, the need of food and sleep, and the desire for liberty, lose, for men of culture, their constraining power, without always being sufficiently replaced by other mental forces.

Advancing civilisation has considerable influence also on the development of the will. As it largely guarantees the satisfaction of simple wants and the protection of life, it saves us that daily struggle for mere existence that repeatedly stimulates the self-preservative instinct. On the other hand, from earliest youth it restricts the expressions of our will by education, schooling, precepts of religion and morality, rules of conduct, customs, laws, regulations and duties of every kind at every step and turn, so that in human intercourse we can go no other than strictly prescribed ways, without some instant rude reminder that we must consider our fellows. This taming is possible only through the formation of a multitude of inner restraints, which resist unceasingly the explosive force of the will. From them proceed the sense of duty, and conscientiousness, and also one of the most wide-spread characters of civilised man—anxious hesitancy—as

well as the host of paralysing doubts and self-reproaches that in our disease-pictures, in contrast with those of uncivilised peoples, hold so prominent a place.

On the other hand, it may well be urged that whatever importance these considerations may have is quite impossible of assessment, and that, corresponding to the mischiefs alleged, civilisation confers certain advantages, by which such tendencies to impairment of national efficiency may perhaps be more than compensated. Among the weaklings whom to-day our pity keeps alive many a valuable personality is to be found ; but the value of the extended operation of our social care lies so much more in the raising of the general state of the people, that in comparison with this the propagation of the fittest is perhaps of no importance at all. Thus it is that higher moral powers are evoked in the mass, and these in their turn strengthen the safeguards against great common dangers. Religious and moral training have a similar effect, inspiring the individual to place all his powers, even life itself, at the service of the community, and so to promote its welfare. The higher brain development and the division of labour associated with it allow of far higher and more varied achievements, and so afford a more complete protection against the dangers of existence than the blind sway of natural impulses could ever provide. Lastly the subjugation of the will of the individual enables action to be directed systematically along paths conducive to the common good, and so gives to the will of the community a sureness of aim and a momentum otherwise unattainable. Who can say offhand whether, in the mental life of our people, the degenerative or the invigorative effects of all these influences preponderate ?

The importance of some further circumstances connected with the progress of civilisation is less difficult to estimate. The refinement of the outward conditions of life, the easy attainment of every possible pleasure and comfort, accustoms people to a host of superfluities, the loss of which is felt as a serious disturbance of bodily and mental well-being. Thus arises effeminacy, coddling, shiftless dependence on others, and a sapping of the will, by which it becomes more and more incapable of meeting new requirements, of overcoming difficulties, of repairing injuries, and of fending for itself. Thus the natural defences against life's hardships are undermined—a process that cannot but interfere with the preservation of mental stability.

The pendant to this picture is pauperism, which in its worst forms is essentially an accompaniment of civilisation. Poverty and need, of course, have existed in all times, and destitution is certainly worse among uncivilised peoples than among our poorest. But the deplorable feature of pauperism among people of culture is the loss of freedom, of close contact with Nature, of rich enjoyment of light and air. This

stunting process has evidently a direct relation to the growth of large towns, which during the last hundred years has progressed with such alarming rapidity. The life of the worker in the crowded city, wearing himself out in the struggle for a living, and almost entirely deprived of free movement in the wide spaces of Nature, in sun and wind, is far removed indeed from the essential requirements of bodily and mental health. The evil results of such conditions are aggravated by other features of town life, by the continual temptation to unseasonable delights that poison body and soul and to antisocial acts, and by venereal disease and alcoholic excess. The growth of large towns in their present form entails ills that gravely threaten not merely the physical, but certainly also the mental health of the people.

Another unfortunate result of economic progress is the undue importance attached to wealth. As money-making becomes the supreme object of endeavour, it leads to unscrupulous exploitation of the powers of our own and other peoples, and not only conduces to effeminacy, but exercises a very undesirable influence on natural selection. In the contracting of marriage the personal qualifications of the partner as regards health and fitness are very commonly subordinated to social, and especially financial, considerations. This disregard of the prime requisites for the business of reproduction must lead to a deterioration of the race, and promote the transmission of characters that are unsuitable.

It is well that in modern civilised life there are many factors by which these unfavourable influences are opposed. There is the establishment of institutions, where detention prevents the severely diseased in mind from propagating. And although the increasing care bestowed on the sick, the weak and the injured preserves many unfit persons, it often prevents the severer grades of damage and procures many complete recoveries. The organised campaign against alcoholism and venereal disease is certainly not unavailing; and the same can be said of the efforts for relieving poverty in large towns, for creating garden cities and small holdings, for establishing holiday camps, for encouraging cottage gardens, and for the betterment of housing conditions. In improving the physique and morale of our people universal military service has been very effective; and a similar purpose is served by athletics and physical exercises of every kind, by the *Wehrkraft* and *Wandervogel* movement, and by country homes for children.

The mental health of our people is thus determined by the simultaneous action of a great number of complicated, co-operating, interacting and conflicting influences, and no one can say whither the resultant of these forces is tending. On the one hand, we can point to the rarity of mental illness in animals and in uncivilised peoples; to the enormous increase in the number of insane persons requiring care in all civilised nations; to the increase of suicide, crime, drink

and syphilis in the great centres of civilised countries; and to the manifold artistic, religious and political extravagances that in this age are so rife. On the other hand, it can be pleaded that disease and poverty were formerly perhaps more severe and wide-spread than now, only less noticed and less combated; that the great mental epidemics of the middle ages would to-day be impossible; that many distressing phenomena of our social life are due to intensification of the struggle for existence rather than to mental degeneracy of the people; that superstitions and crazes have played in bygone times a far greater part than in our day; and that the unparalleled achievements of this present age in every sphere of human activity, and especially our efficiency in war, must at once dispel every suspicion of decadence of our mental qualities.

For a decision of these questions so important for our national existence we can rely only upon facts, of which as yet we have only an altogether insufficient quantity at our disposal. Many inquiries indeed have been instituted by various authorities—inquiries that for the estimation of public mental health are of great importance. Thus, besides the lamentably meagre statistics of lunacy, we have returns of births, marriages and deaths (including infant mortality and suicide), the reports of education authorities, military returns, criminal records, and police and law reports, all representing an inexhaustible mine of information as to manifold morbid phenomena of the body politic; the reports of hospitals and sick funds, and of institutions for nervous and mental diseases, for alcoholism and syphilis; and the census returns as to classification of the population, mortality rates, and comparative figures for urban and rural districts. Besides all these there are many other sources of information, especially as to economic conditions by which the state of the public mind can be influenced or reflected.

The disclosures that a personal study of circumscribed sections of the population can yield in reference to the questions here considered may be briefly indicated. The emergence and disappearance of particular stocks, their rise and fall, the fates that attend them and the transformations that in process of time they undergo, afford often a deeper insight into the causal relations between external influences and mental welfare than any that we can derive from numerical presentations of the behaviour of the mass.

At present, unhappily, we are not in a position to talk of collecting the information already extant regarding the mental state of our people. But psychiatry should not grow tired of insisting that here an immense task lies before us, whose accomplishment is an urgent necessity. By careful verification and collation of all obtainable facts we must secure a clear and permanent picture of the effects of the degenerative and invigorating influences of modern life, so that we may formulate rules for meeting the dangers that threaten us. What people shall fare forth

upon the uncharted ocean of the future, without a compass to show it when it is off its course and is heading for destruction?

The highest aim of medical research is the vanquishing of disease, and the surest road to this is the discovery of causes. When these are known, we are faced with a clear question of the measures we are to employ. Already there is a large sphere in which an answer is forthcoming. This is the case with the habitual poisonings by alcohol, ether, morphia and cocaine. Here nothing is necessary for restoring health but to prevent further introduction of the poison. We are assuming, of course, that no permanent or incurable results have yet been produced. It follows that intervention is the more promising the earlier it is effected. The action that we must take is indicated, and all that remains for research is to ascertain in detail the relation between causes and phenomena, so as to demonstrate the necessity for medical interference. Similar, though less simple, is the position as regards cretinism, Graves's disease and syphilis; the steps to be taken are known, though we still do not thoroughly understand the processes going on. In syphilis especially the efficacy of our curative methods does not come up to our wishes; even if we can intervene early, which of course is the main condition for successful treatment, our weapons often misfire. By the systematic investigations associated with the name of Ehrlich, aided by animal experiments, great progress has been made, and we may justifiably hope for further advances in this direction.

When the cause of a disease is known, a more effective and satisfactory way of combating it is often open to us, that of prevention. The problems connected with this extend, of course, beyond the province of the physician, and require united action of the community. Although the measures to be taken are in themselves simple and intelligible, as in the prevention of poisonings, syphilis and hereditary degeneracy, their application encounters great obstacles in established custom, prejudice, ignorance, vested interests, and opposition to interference with personal liberty. As such resistances commonly spring, not from reasonable considerations, but from sentimental likes and dislikes, they are less easily overcome than we could wish by scientific argument. The personal experience of the individual is far more persuasive, but is of little help where united action is required. It is here perhaps that demographic research, by displaying the phenomena of disease observed in the mass, may be effective in bringing before the eyes of each member of society the dangers to which he himself is exposed by deterioration of the race.

The problem is much harder when we are dealing, not with obviously injurious influences that are to be combated by simple and definite regulations, but with causes whose removal requires a general ordering of the whole conduct of life. Besides many general diseases such as

rickets, scrofula and chlorosis, which may participate in the production of mental disorders, premature failure of physical and mental powers, and the arterial sclerosis often associated with this, may be specially promoted by conditions of life that have shaped themselves with or without the connivance of the individual. Here we have to deal with slow and insidious causes whose effects are difficult of recognition and proof; still, one of our tasks is to establish a doctrine of mental health that shall show us how to develop the powers of the mind and preserve them from life's dangers. Besides animal experiments, which enable us to some extent to resolve into their details the effects of complicated conditions, we shall make use of psychological experiments on man, for by these the first slight mental disturbances resulting from particular noxious influences can be revealed long before they reach morbid proportions.

Even when we know the causes of the insanity, we are often unable systematically to remove or prevent them. But a far more serious thing is the fact that in most of the severe mental diseases we have no knowledge, often no inkling, of the conditions for their production. Ignorant of the cause, we have no clue to treatment, and are reduced to making random shots, which obviously have little chance of hitting the mark. Yet that they do now and then succeed is shown in the case of epilepsy. The means of treatment hitherto most effective in this disease, bromides and luminal, were not discovered through our knowledge of its causes and nature—knowledge which is still extremely meagre—but by pure accident. Probably this is why the results of treatment, though undeniably, are so unsatisfying. Complete failure has hitherto dogged all attempts at treatment of the form of insanity that more than any other fills our asylums—that dementia praecox whose causation is so obscure. The conjecture that this is due to faulty composition of the blood, consequent upon some endocrine disorder, has not been upheld by the results of administration of glandular extracts. We are not much better off with respect to that severest of all mental diseases, general paralysis, though its relationship to syphilis is now beyond doubt. All attempts to fight the disease with the means useful in syphilis have as yet been in vain. Only the one hope, and that not assured, remains to us, of being able to prevent its occurrence by timely radical treatment of syphilis on a more extended scale. We shall never, I believe, find any really reliable way of combating general paralysis until we are quite clear as to the nature of its connection with the underlying syphilis.

In these circumstances we must, for the present, and perhaps for a long time to come, be content in most cases to treat symptoms. This applies especially to one of the largest groups of those who seek our help—the sufferers from manic-depressive disorders. Since we have as

yet no insight into the bodily changes, often very stormy, that occur in these cases, we are unable to influence them decisively. Yet, where we cannot eradicate symptoms but only mitigate them, research must not stand still. The long series of sedatives and hypnotics and other means of alleviating the sufferings of our patients have been discovered by experimental gropings, which, though they have wandered into many wrong paths, have yet often struck the right one. We must extend our knowledge of the mode of action of our therapeutic agents by more and more refined experiments on animals and man. With the help of such experience we shall be able to find out new procedures more adapted to the purposes in view and possessing greater efficacy without the inconveniences and dangers of our present methods.

While we must be zealous in our immediate task of relieving symptoms, we must not lose sight of our main object—the struggle against the causes of insanity. No one can at present foresee whether, or how far, our efforts in this direction will be successful. But it is not to be supposed that if any progress is made it will be by some lucky accident or inspiration. We must be prepared to face the fact that every step of the way will have to be trodden, and with untiring care and thoroughness. Nor is it thinkable that any one man, however outstanding his ability, will ever solve the riddle unaided. In any circumstances a detailed division of labour will be needed and a union of forces for attacking the great problems of our science from every side.

These requirements have hitherto been quite inadequately met. There was but a handful of investigators who, in clinics and asylums, in the midst of harassing daily tasks, found leisure for research, and at the same time had the ability to find their own road. Their positions were mostly subordinate, ill-paid, and never meant to be held for any long time. Regard for their future career usually prevented them from devoting themselves very much to research, for whose prosecution, moreover, little time was left to them when once they had reached some measure of official and economic independence. They had at their disposal insufficient space, slender means, and inadequate material and equipment. In all these directions the establishment and expected completion of the German Institute for Psychiatric Research will effect a change. So far as the preliminary conditions for fruitful investigation are here fulfilled, we can look with confidence to the future. Though the solution of the problems before us may be harder than we anticipate, we can at least set about it systematically. Those extraneous hindrances that daunt the spirit and drain the strength can thus be in great part removed, while upon the intrinsic difficulties of the subject our powers will exercise themselves and grow. What is anyhow attainable can so be attained, whether scientific knowledge or saving deed.

Venous Stasis.⁽¹⁾ By THEO. B. HYSLOP, M.D., F.R.S.Edin.

IN order to understand venous stasis in its several relationships to the functions of the brain, it is advisable to refer to some of the problems which have been the most difficult with which neurologists and psychiatrists have had to deal. The aspects of the problems studied have been so varied, and the interpretations of the phenomena so widely different, that it has hitherto been almost impossible to obtain any degree of unanimity of opinion. In dealing with the aetiology and pathology of disease one of the first considerations ought to be to determine, if possible, the existence of physical or mechanical factors of causation.

Functional integrity of the various systems of the body depends upon the maintenance of balance between stimulation, chemical change, metabolism, nutrition, and excretion. For present purposes, however, I propose to exclude from consideration all problems of chemistry and metabolism, and to confine my attention merely to those of the mechanism of "supply and demand" occurring within the skull.

It would appear to be almost useless to attempt to unravel some of the complex problems of intracranial physiology, neurology, and psychiatry, until we have first come to a more definite agreement concerning the nature of the actual mechanism involved.

(1) Is the brain a generator, or merely a transmitter of energy?

The living organism, as in the case with matter generally, can neither create nor destroy energy. The nervous system can only serve as a transmitter or transformer of energy. The attribute, "sensibility," is a superposed phenomenon, and although its physical manifestations may be expressed in terms of energy, it cannot act as a substitute for the energetic phenomena of matter. The excitability and sensibility of living matter provides us with the first elements or rudiments for adaptive reaction for the preservation of life in the substance stimulated. The stimuli are derived from the external world, and the reaction of the organism to them is obtained by physico-chemical activities, which become more highly elaborated as the organism becomes more highly evolved in complexity.

It is probably true that the nerve cell does not initiate energy, but serves as a mechanism for the support, protection, and nutrition of its fibrillar elements, which are concerned with the propagation and direction of energies developed elsewhere. In fact, the rôle of the nervous fibrillæ is to transmit an impulse from one point to another. Morat (*Physiology of the Nervous System*, p. 48) has stated this very clearly: "The body of the cell of the neuron is an organ necessary

(1) A paper read at the Spring Meeting of the South-Eastern Division, May 5th, 1920.

for the organisation and conservation of the latter, but it takes no necessary and direct part in its power of functional activity so-called."

From these remarks it will be gathered that the statical and dynamic unit of nerve is to be sought in the nervous or fibrillar substance proper, and any observations derived from experiment on the nerve cell or medullated fibre must be imperfect so long as they do not exclude the organotrophic energies. The true static unit of nerve must, in common with other units, possess chemical, caloric, and electric force which undergoes transformations when the specific energies of the nerve units are called into play; but of the nature and source of these energies and excitations of their transmitted and localised effects, and of the possibility of their being held in reserve, nothing is definitely known. As a matter of fact, the experiments of Rolleston, Stewart, and Boeck (who endeavoured to estimate by means of an apparatus sensitive up to 1-5,000th of a degree the amount of heat given off by an isolated nerve trunk) gave no results. Similarly, many physiologists agree with Hermann that electric nerve currents do not pre-exist, any currents which do occur having a chemical source and arising under entirely artificial conditions. The various modifications of the body of the cell during repose and functional activity and the phenomena of chromatolysis pertain to the trophon and not to the static units of the nerve proper, which are relatively almost incapable of fatigue.

(2) Is the sum total of the intracranial contents capable of variation in amount?

In a paper read before the Hunterian Society (Hunterian Lecture on "Intracranial Murmurs in their Relationship to Tinnitus Aurium," *Lancet*, October 14th, 1911), I there stated that the term "cerebral pressure" really means either undue preponderance of one or other of the cranial contents, *partial displacement* of one or other constituent, acceleration of the arterial or retarding of the venous circulation, or alteration in the compensatory movements of the cerebro-spinal fluid. Arterial, venous, lymphatic, and other forms of pressure due to injury or disease, etc., are but terms used to signify alterations either in the position or in the relative quantities of the cranial contents. The intracranial contents being in the sum incapable of expansion or contraction, it is of importance to note the mechanism whereby the "give and take" between them is affected. The brain itself is passive, and depends upon arterial, venous, respiratory, and peristaltic movements for its metabolism and activities. Its substance may be displaced, contracted, expanded, or destroyed by injury, disease, new growths, or finer interstitial degenerative changes. The arterial system may preponderate unduly in its activities, the relative amount of arterial blood being greater than in health. This is due either to excess of propelling action in the arterial system or defect in resistance of the

venous or lymphatic systems. The arterial blood may be diminished, on the other hand, owing to defect in the propelling mechanism or to increase in the resistance offered by the venous or lymphatic systems. Similarly, the arterial and venous systems may be concurrently hyperactive or deficient owing to diminution or excess of the lymph cisterns. Perfect balance of the relative quantities of the cranial contents thus presupposes certain activities or movements, which are also essential to proper metabolism. The skull thus regulates the pressure of the fluid within its cavity, and any functional increase in the arterial blood would be possible only upon one of two conditions, *viz.*, a corresponding collateral arterial diminution, or a transfer of venous blood in the direction of the venous sinuses. A venous transfer would be altogether too slow, and there could not be any continuous action, for the repulsion of the venous current—dependent upon the respiratory movements—would give rise to a frequently interrupted flow of venous blood in the brain. The cranial cavity is not, however, entirely filled by the brain; it includes, in addition, a number of spaces filled with lymphatic fluid.

The Monroe-Kellie doctrine, that the intracranial contents are, in the sum, a fixed quantity, has not yet been fully conceded. If, however, we can start with the acceptance of this doctrine, a vast field of possible explanations of intracranial phenomena becomes open to us.

Alexander Monro (Secundus) wrote as follows (*Observations on the Structure and Functions of the Nervous System*, p. 5): "As the substance of the brain, like that of other solids of our body, is nearly incompressible, the quantity of blood within the head must be the same, or very nearly the same, at all times, whether in health or disease, in life or after death, those cases only excepted in which water or other matter is effused or secreted from the blood-vessels, for in these a quantity of blood equal in bulk to the effused blood will be pressed out of the cranium."

Many other observers have, from experiments and reasonings founded on the mechanical construction of the cranium, concluded that the absolute quantity of blood within it is at all times nearly the same, and were the other intracranial contents, such as the extravascular serum, the connective and nervous tissues, fixed quantities also, the quantity of blood would be absolute and invariable. Thus it might be conceded that any variation in the relative quantities of the fluid constituents must consist in a "give and take" between extravascular and intra-vascular contents, one acting as compensatory to the other.

Were we to attempt to drain the cranium of its fluid contents by aspiration of its veins at their points of egress, we would find that we could not really diminish the sum-total, for there would always be

compensatory filling of the cranium by fluid unless, of course, the mechanical forces were sufficient to create a vacuum.

The next principle to recognise and acknowledge is that, in accordance with the law of pressure of fluids, the tension throughout the nerve structures which are supported and everywhere permeated by fluid must be equivalent, or nearly so, at every point. The disposition of the solid tissues is, of course, determined by the volume, strength and direction of the blood currents. The mechanism whereby one set of vessels feeds and another drains the capillaries, and whereby the balance between lymph supply and metabolic change in the nerve structures is maintained, will be more fully comprehended if we bear in mind this fundamental principle. When we speak of local congestion, or local pressure, as occurring within the skull, we mean, therefore, that there is a relative preponderance of one or more of the constituents, with compensatory diminution of one or more of the other constituents, this diminution being affected by displacement which, when viewed in its external manifestations as an extension through one or more of the cranial apertures (along lines of least resistance), becomes, strictly speaking, extracranial, and causes conditions which bear a certain homology and analogy to conditions of hernia. Thus it is that all the apertures for the ingress and egress of vessels and nerves, to and from the cranium, become the sites at which the compensatory mechanism of give and take must necessarily find the greatest strain, and it will readily be understood how under disturbed conditions of balance between the relative proportions of the intracranial contents the various sensory and other structures attached to the cranium may become mechanically and also pathologically affected.

Of late years Leonard Hill, Baylis, Elder, Bradbury, Geigel, Hurthle, Roy and Sherrington, Cavazzini, Pusateri, Acquisto, d'Abundo, Mosso, Duke, De Sarlo and Bernardini, Ford Robertson, and many others, have contributed very valuable observations to the discussion. Any divergencies of opinion which may have arisen have been (1) from imperfect comprehension of the real nature and mechanism of the contents of the cranium; (2) from faulty interpretation of the anatomy and physiology of these contents; and (3) from experiments conducted upon structures and mechanisms which are really extracranial.

It is essential to recognise that the brain is mainly of fluid consistency, *i.e.*, of arterial, capillary, and venous blood, and also of lymph which occupies not only the ventricles and cisterns, etc., but which also circulates in the perivascular canals and permeates everywhere, even within the nerve-cells, and possibly even to the nuclei and nucleoli. Under these circumstances it is evident that we are dealing with what is, to all practical purposes, a fluid medium which must conform to the ordinary laws of hydrostatics. Hence the incompressi-

bility of the brain, replete as it is with fluid, is imaginary and not real. It seems obvious, therefore, that the term "pressure," as applied hitherto to the intracranial mechanism, requires modification.

The cranial cavity may be compared to that of a hose syringe, the perforations at its nozzle corresponding to the usual points of egress for the fluids (*i.e.*, the normal channels into the veins, lymphatics, and the spinal column). If we close some of the numerous orifices at the base of the skull normal conditions are able to resist the outflow of fluids from the cranium. Any displacement of fluid takes place along the lines of least resistance, and it will pass out of the skull (in physiological conditions of health). If, however, this process of displacement is arrested, the fluid then seeks to escape from the points of lesser resistance, and the phenomena of dizziness, ringing in the ears, flashes of light, rhinorrhœa, choked discs, etc., are occasioned, the intracranial fluid seeking to escape by unusual channels. In any experiments to determine intercranial pressure it would appear to be fallacious and misleading to deal solely with conditions of pressure outside the skull. This objection is obvious when we reflect that the mechanical, anatomical, physiological, and atmospheric conditions outside the skull are totally different from those within it.

The doctrine of the incompressibility of the brain-tissue being a myth, it seems necessary to find some means by which the brain may best react mechanically to the expanding influences brought to bear upon it. In the absence of any direct influence derived from atmospheric pressure, the arteries, arterioles, and capillaries are provided with a relatively greater amount of elastic tissue than exists in these vessels elsewhere, and it is by means of this elasticity of the vessel walls that resistance to their undue expansion and also their power to contract become possible. Under the general laws of hydrostatics it is inconceivable that increase of local pressure can occur or bear any significance other than as being an increase in volume of one constituent at the expense of the volume of other constituents, any actual conditions of pressure or tension being the same throughout the whole of the intracranial contents. Needless to say, the presence of tumours or other foreign bodies may not only cause alterations or displacements of structure, but also alterations and displacements of the sum-total, or alterations in the relative proportions of the fluid constituents.

Excluding spatial or mechanical encroachments from without (as in depressed fractures), or from within (due to intracranial tumours, foreign bodies, etc.), the sum-total of the intracranial contents is not only constant and invariable, but the pressure throughout the sum-total of the contents is also universal and equivalent.

The intracranial mechanism being thus passively dependent upon extracranial factors, there becomes no need for a special vasomotor

nerve-fibre mechanism such as pertains to vessels of the body, and the long-continued dispute as to the presence or absence of special vasoconstrictor and vasodilator fibres within the cranium can probably be finally settled if this assumption be true.

It would seem that the various intracranial movements due to pulsatory and respiratory factors are entirely extracranial in origin and force ; and it will probably be conceded that any evidences of intracranial vascular peristalsis are merely evidences of propagation of the peristalsis common to the arterial system right up to the points of ingress of the arteries to the skull, *i.e.*, the intracranial waves owe their peristaltic variations more to the variations in volume of the arterial waves propagated from without than to any actual vasomotor influence acting on the vessels within the skull itself.

In speaking thus of intracranial local tension it must, of course, be conceded that there may be, under pathological conditions, a struggle for supremacy between different contents. It is also to be noted that no account is here taken of osmotic or other influences which serve to preserve the balance between fluids of varying consistency.

The usefulness of applying mechanical and mathematical principles for the explanation of intracranial disease is evidenced in a remarkable degree when we study the disturbances from which the brain and its adnexa are prone to suffer. Thus arterial inflammatory affections, capillary engorgements, and increase of serous exudation and diapedesis of leucocytes, with ultimate formation of connective tissues, can be represented by more or less definite formulae. Similarly alterations in the relative proportions of the lymph as a whole, or in its relationship to individual units such as the neurons, can be defined in mathematical terms ; and lastly the processes of excretion by the lymphatics, the venules, veins, and sinuses may be considered either separately or in their entirety. Intracranial physics has not yet elaborated the mechanism of backward pressure in the vascular structures, and seldom do we find anything in treatises on diseases of the brain which tends to throw much light upon the mechanism or results of backward venous pressure. We know that venous congestion and stasis do occur, and that the surface veins of the brain are in almost immediate juxtaposition to various brain centres, but the variations in venous pressure and their effects on the cortex as occurring in health and disease have as yet been scarcely touched upon. We have here, therefore, an almost unexplored field for research.

It should be recognised that the cranium and its contents are dependent upon the blood for nutrition and repair, and that the processes of nutrition and repair are dependent not only upon an adequate mechanism of arterial supply, but also upon an adequate mechanism of venous drainage. The cranium and the pelvis hold

a somewhat similar relationship to the general circulation, and their contents are dependent respectively on similar conditions of arterial supply and venous drainage. This being the case, and recognising the close similarity between the two departments, it becomes evident how, under certain mechanical defects in the circulation, a double series of phenomena becomes manifest. It is an old observation that congestion of the pelvic contents is apt to be simulated in the brain, as evidenced by the nervous and mental symptoms associated with constipation. The comparison could be carried still further so as to include, on the one hand, the numerous troubles arising from congestion of the various pelvic viscera, and, on the other hand, the almost innumerable varieties of symptoms arising from delay of the venous return, not only from the various orifices of the skull, but also from the cerebral convolutions themselves. Such conditions as haemorrhoids, which are extrapelvic in site, are simulated by the various conditions of extracranial congestion occurring at the orifices of egress of the cerebral and cranial veins, either singly or in relationship to the cranial nerves and the special organs of sense. It will readily occur to all present how, under conditions of lowered blood-pressure, a tendency to venous stasis might readily occur, and, viewed from the purely mechanical standpoint, the indications for treatment are evident. In his Croonian Lectures on the "Degeneration of the Neuron" (1900), Mott made some extremely valuable observations in regard to the part played by venous congestion in the production of various forms of nervous and mental disease. He there pointed out the means whereby a vicious circle becomes established by conditions which tend, on the one hand, to perpetual venous congestion in certain regions, and, on the other, to increased excitability of the neurons, these factors mutually interacting. It seemed to be a remarkable fact, that whereas much attention has been paid to the question of the arterial supply to the brain, the venous drainage from the various convolutions has been somewhat neglected. This is all the more remarkable in view of the close relationship between the veins and their surface of drainage from the various convolutions. When one considers the question of the vital importance of an effective drainage from the various sensory and motor regions, it becomes difficult to avoid recognising that many of the groups of symptoms met with in neurasthenia are not only of localising value, but also form indications as to the treatment necessary. I think, however, that this is not the occasion to elaborate the observations of Mott with regard to the part played by venous congestion regarded from a regional point of view, but I believe the time is not very far distant when many of the types of neurasthenia will come to be regarded as being due to local conditions of a mechanical nature, and dependent upon factors which are entirely

extracranial in origin. The tendency to perpetual venous congestion in certain regions, referred to by Mott, is markedly exemplified in some parts of the course of the superior longitudinal sinus and in the area drained by the great anastomotic vein of Trolard. Just as the left middle cerebral artery is the artery of greatest wear and tear, so certain veins are subjected to greater exercise of function than others, and it is to the efficient drainage from these veins that more attention might with benefit be given. Speaking generally, I might state, with some degree of truth, that oftentimes what has come to be regarded as a familial neurotic taint is merely a familial defect in the bodily mechanism, whereby individual members of the family, whilst possessing finely evolved brains, are prone to neurasthenia because their brains are but imperfectly served by the bodily mechanism. The practical indications for the treatment of such cases are very clearly defined, and I have found benefit to accrue from complete rest of the areas which are drained defectively. One general principle of treatment is to increase the force of the arterial wave by cardiac stimulation, and to favour the venous return by aiding the inspiratory venous suction by forced inspiration, plus passive pressure, or massage, extending from the occiput downwards. Abdominal massage is also of considerable value, and more especially so when it serves to stimulate intestinal peristalsis. With regard to the special senses, I would give only one example of the effects of treatment by complete rest. The temporo-sphenoidal convolutions are particularly prone to suffer from venous stasis, and in order to give them complete and absolute rest, and more especially when auditory disturbances are present, I recommend for that purpose plugging of the meatuses by suitably devised plugs of paraffin wax. By this method I have afforded relief from hallucinations of long standing.

In presenting to you these views on cerebral congestion and its results, I venture to hope that I have not only afforded material for discussion, but that I have also helped to throw some light on certain aspects of cases which are not only remarkably frequent in their occurrence, but which are also most difficult of explanation. It must not be assumed that my remarks apply to all cases of cerebral congestion, for there is of course another series of morbid phenomena due to high tension with arterial capillary fibrosis and the usual series of pathological changes ranging from sclerosis to actual haemorrhage and paralysis.

Résumé.

ACTIVE CONGESTION is due to :

- (1) Over-action of the heart and whatever increases the force of the heart.

- (2) Sudden contraction of the arterioles elsewhere—as, for instance, in the skin from exposure to cold or during a rigor—causing transient over-filling of the cerebral vessels together with those of other viscera.
- (3) Dilatation of the arterioles, and consequently an increase of the blood-supply, produced by certain toxic agents, especially by nitrite of amyl, nitro-glycerine and alcohol. In exophthalmic goitre vascular dilatation is associated with cardiac over-action. In some young neurotic persons periodic congestive disturbances are frequent.
- (4) Active congestion occurs as the first stage of inflammation. Convulsions may be due to active or passive congestion.
- (5) Sunstroke is said to be not infrequently attended by active congestion, but in my opinion the congestion is generally passive and due to extracranial and hygrometric causes.
- (6) In acute febrile diseases the delirium is usually due primarily to toxins and secondarily to congestion.
- (7) Plethora in adults with an increase in the total quantity of blood in the system, when attended by the suppression of an habitual discharge, especially haemorrhagic, as from piles or catamenia, or rhinorrhœa, epistaxis, etc., is apt to be attended by congestion, and in this relationship many chapters could be written.
- (8) In many instances the active condition of congestion may be local, as in connection with tumours, focal lesions, etc., but with these there is no need to deal.

PASSIVE CONGESTION is always produced mechanically by some obstruction to the return of blood. It occurs in heart disease when there is over-filling of the venous system; in conditions of pressure on the superior vena cava, or on the innominate veins, or on the veins of the neck in tumours, etc.; in obstruction to the flow of blood through the lungs in coughing, playing wind instruments: in strangulation from tight collars, in suffocation, and in spasmodic muscular conditions affecting the throat, as in epilepsy, etc.; in causes due to gravitation and the various types of asphyxiation, but most commonly of all to deficient arterial pressure.

Of the various symptoms of the plethoric and adynamic types there is no time to devote to their further elaboration. Gowers, after having fully elaborated the pathology and symptomatology of the various cephalic sensations, states that there is not the slightest justification for attributing them to congestion of the brain, and he states contemptuously that when such patients consult many doctors, as they usually do, they are told that their symptoms are due to congestion of the brain, or even (with a precision that is evidence only of profound

ignorance or of actual charlatanry) to "congestion of the base of the brain"—a condition that probably never exists but in a pathological imagination. Needless to say this sweeping assertion is consistent neither with his own findings nor with those of any other observers who have studied the conditions to which he refers.

I have referred frequently to the value of massage of the base of the skull, the neck and spine, to ensure free movement in the veins and lymphatics. This should be conducted rhythmically from above downwards to synchronise with expiration and the draining of venous fluid from the skull. It is sometimes remarkable how this relieves stasis in the basal veins, the petrosal and cavernous sinuses, and not infrequently an anaesthesia, more or less general, improves rapidly with draining of the straight sinus, thereby relieving the intra-commissural areas concerned with cutaneous sensation.

I have also found that rhythmic exercises relieve conditions of venous stasis which hitherto have not yielded to any other form of treatment. In many cases I believe it to be essential to aid the circulation by careful estimation of the internal secretions and adjustment of the balance between the thyroid, pituitary, adrenal, ovarian, and testicular functions.

The Functions of the Basal Ganglia.⁽¹⁾ By J. V. BLACHFORD, C.B.E., M.D. Durh., Medical Superintendent, City Mental Hospital, Fishponds, Bristol, and Lecturer on Mental Diseases, University of Bristol.

IN the *Journal of Mental Science*, vol. xlviii, 1902, p. 53, I described a case of degeneration of the optic thalami in a male patient, and pointed to the fact that the symptoms were chiefly those of very advanced dementia.

Some years later a female patient, who had been resident in the asylum for a number of years, died. The following is a short history of her case and the conditions found *post-mortem*:

E.T.—, a female patient, æt. 78, had two or three attacks of partial aphasia; the last and worst occurred some months before her death. There was no paralysis, but patient complained of feeling giddy and at the same time was at a loss to remember certain words in conversation. From the first attacks she recovered completely; as regards the last, her aphasia had much improved but she was evidently becoming more childish, and her death was certified as due to old age. *Post mortem*: The vessels at the base of the brain were noted as very atheromatous, the grey matter pale and firm, the white matter pale and firm, and ependyma of ventricles smooth. There was a fairly large patch of softening in the right corpus striatum and a smaller one in the left. In this case the only lesion to account for the aphasia was softening in the corpora striata.

I have searched the *post-mortem* records of this asylum for the past twenty years, and in all cases in which the lesion could be localised in

⁽¹⁾ A paper read at the Autumn Meeting of the South-Western Division on October 28th, 1921.

the basal ganglia, have ascertained from the case-books, as far as possible the symptoms presented by each, before and after admission. Including the one just described, there are seventeen in all, and the following is a *résumé*, giving the seat of the lesion and the symptoms:

Optic thalamus.—Three cases: All dementia—no paralysis noted—no convulsions or fits.

Optic thalamus and corpus striatum.—Three cases: 1 dementia; 1 seizures—paralysis—dementia—speech much affected; 1 seizure—strong convulsions.

Corpus striatum.—Ten cases: 4 speech affected; 1 hallucinations of sight and hearing; 1 epilepsy—dementia—destructive; 1 fits, two or three years before admission; 1 left-sided convulsions; 1 epileptiform fits; 1 pupils normal—knee-jerks present.

Internal capsule.—One case: Aphasia—hemiplegia—loss of sensation.

From this analysis it will be seen that in lesions involving the optic thalamus alone, the chief symptoms were those of dementia, or inability to appreciate one's surroundings without epileptiform seizures or convulsions, which, however, sometimes occurred accompanied by dementia if a striate body was also involved; that injury to the corpus striatum led to epileptiform convulsions, or difficulty of speech; and that in the only recorded case of involvement of the internal capsule alone, the symptoms were motor and sensory paralysis, but unaccompanied by convulsions or any marked degree of dementia.

The optic thalamus is connected with the centre for sight through its posterior peduncle, with the auditory centre through its inferior peduncle, with the fronto-parietal cortex through its anterior peduncle, and with the olfactory centre through the bundle of Vicq d'Azyr. It is also intimately connected with the mesial fillet, is older than the corpus striatum, and no doubt chiefly concerned in those associations of the primary sensations of sight, touch, hearing and smell which enable us to form perceptions, a perception being the result of the association of two or more sensations, hence in lesions of this ganglion the most elementary appreciation of things in the outside world including our own peripheral parts is at fault, leading to pronounced dementia.

The corpus striatum, on the other hand, is connected chiefly with the optic thalamus and cortex; with the former through the ansa lenticularis connecting the thalamus with the lenticular nucleus, and fibres passing through the anterior part of the internal capsule connecting the optic thalamus with the caudate nucleus; with the cortex through the cortico-caudate fibres connecting the frontal cortex with the caudate nucleus, and by three bundles connecting the lenticular nucleus with the frontal region, the insula and the temporal region.

Lesions of the corpus striatum give rise to convulsions, epileptiform seizures and difficulties of speech and but little permanent muscular

paralysis, unless the lesion is sufficiently extensive to involve the internal capsule. The anatomical connections and pathological considerations appear to point to the fact that it is the centre for the association of the muscle sense with the other centres of primary sensation, probably already associated amongst themselves in the optic thalamus.

(a) We can only think in terms of muscular energy ; in other words, all thought is an incipient muscular contraction, due to the mild stimulation of those cells which receive the sense of muscular contraction when certain muscles are used, either to pronounce the name of the thing thought, or to adjust the eyes or other parts of the body in perceiving the object, or, performing the action.

(b) This stimulation, if carried still further, issues in action, *viz.*, the contraction of those muscles used in pronouncing the name or performing the act, of which these cortical cells are the sensory representatives.

(c) Associated sensations giving rise to a perception leave the thalamus and reach the corpus striatum. Here they are associated with the muscle sense, which arises whenever the object is perceived and its name pronounced, a mental picture consisting of this muscle sense being thereby projected on to the cortex. In lesions of this body giving rise to a disassociation, or rather to want of association of these sensations, no picture is so formed, and so there is a forgetfulness of the name required, although the object and its use may be recognised, hence visual aphasia. In the same way, should the part concerned with the association of sound and the muscle sense be involved, word-deafness will result, though the patient hears perfectly well what is said to him, the failure being in that part of the nervous centre in which the sound is associated with the muscle sense, so that the muscle sense cells in the cortex corresponding to the sound are not stimulated and the consequent mental picture is not formed. In those cases in which the lesion is irritative we should expect contraction of the muscles whose sense cells were over-stimulated. But as some of the association cells in the corpus striatum will have been destroyed by the lesion while others are unduly stimulated, instead of an orderly co-ordinated contraction of the corresponding muscles there will arise irregular, unequal contractions ; and should the irritation be sufficiently severe these will spread to other parts, giving rise to one-sided, and sometimes even to general convulsions.

The muscle sense is the most revivable in consciousness ; it is almost impossible to recall a taste, or smell, and, as to sight, colours are very faintly revivable, and then only by thinking at the same time of the name (and so incipiently pronouncing it). The shape and form of objects are much more revivable, this being due to the revivability of the muscular feeling experienced through the musculature of the eye-

balls, etc., when the object has been observed. Musical sounds are easily remembered, but only by that faint feeling of muscular sense which is experienced by the muscles of the larynx, lips, tongue and cheeks when the same tune is sung, hummed or whistled—in fact, whenever a melody is thought over there is always a distinct feeling of strain in the laryngeal muscles. On the other hand a loud report, which cannot be imitated by the voice, is quite incapable of revivability. If, then, the muscle sense is the only sense immediately revivable, the others being not so, or only indirectly through the muscle sense, it follows that it is our only medium for recalling past experiences or forming ideas—in other words for any kind of thought. It is not uncommon to meet with patients having some of the above-mentioned symptoms, especially the difficulty of naming objects, and of calling to mind the words they wish to say, this symptom being frequently recovered from, and, as these symptoms correspond very closely with the cases mentioned, especially that of E. T.—, there does not seem to be any reason why the lesion should not be of a similar nature.

To sum up, then, it would appear that :

(1) The optic thalami are chiefly the association centres of the primary senses of sight, touch, hearing and smell, and their involvement is accompanied by impairment of those associations which give rise to the perception of things in the outside world.

(2) The corpora striata are essentially the centres for the association of the muscle sense with the others giving rise to a great part of our subject consciousness, making speech and thought as we know it possible.

In lesions of these structures we have the phenomena of visual aphasia, word-deafness, inability to call up words and names at will, and various difficulties and irregularities of speech and thought due to want of association of the primary senses with the muscle sense. Divided up as these bodies are into nucleus, caudatus, putamen, and globus pallidus, it is probable that they have other functions as well, almost certainly associated with the motor system. Only careful and prolonged investigation will enable this to be solved ; experiments are useless, and we shall have to rely on clinical, pathological and anatomical research.

There is one other point : we are in the habit of speaking of the special senses as five in number—sight, hearing, touch, taste, and smell—omitting the muscle sense, which is of such importance, for without it, thought, as we know it, would be impossible.

There is also a seventh sense, which, though recognised by the physiologist, is seldom mentioned—the sense of position of the body and its parts. It is well known that the special organ for this sense is situated in the vestibule and semicircular canals, and that in disease or injury of these structures there is intense vertigo and inability to stand.

The axons of the vestibular nerve pass to the dorso-internal nucleus, the nuclei of Dieters and Bechterew in the fourth ventricle, and thence fibres pass directly to the cerebellum. The maintenance of the various positions of the body and its members is intimately connected with the association of the sense of position with the muscle sense.

Cortico-pontic fibres, anterior and posterior, reach the pontic nuclei from the fronto-parietal and temporal regions and these fibres pass up to the cerebellum, the latter in all probability being the centre for these associations.

Clinical Notes and Cases.

Paraphrenia.⁽¹⁾ By M. J. NOLAN, Medical Superintendent, District Asylum, Downpatrick.

I AM sure it has been the experience of many other observers to come across certain unusual highly-coloured cases of mental disorder, difficult to place correctly in the jig-saw puzzle of insanity. We take very careful note of such cases and try to fit them into their proper places, but here and there the outlines do not correspond and the colour-tones do not blend in, so it is only after great patience we at last get them to fall exactly into the vacant spaces. And so it was with Kraepelin, who revived and restricted the term "paraphrenia" as suitable to designate "the morbid forms which are distinguished in their whole course by very definite manifestations of peculiar disturbances of intellect, while lacking enfeeblement of volition and especially of feeling, or at least such symptoms are only feebly indicated."

Prof. Kraepelin, at the close of his classical work on dementia praecox, points out that there is a comparatively small group of cases—paraphrenia—in which, in contrast to that wide-spread disease, there is a far slighter development of the disorders of emotion and volition cases in which the inner harmony of the psychic life is considerably less involved, and in which at least the inner unity is essentially limited to certain intellectual faculties. The marked delusions, the paranoid colouring of the morbid picture is common to all these clinical forms, which cannot everywhere be sharply separated. At the same time there are also abnormalities in the disposition, but, till the latest periods of the malady, not that dulness and indifference which so frequently form the first symptoms of dementia praecox. Lastly, activity also frequently appears morbidly influenced, but essentially only by the abnormal trains of thought and moods; independent disorders of volition not connected with these, such as usually accompany dementia

(1) Paper read at the Autumn Meeting of the Irish Division, November 3rd, 1921.

præcox in such multifarious forms, only come under observation by indication once in a while.

Having stated these facts, Kraepelin, with characteristic modesty and reserve, proceeds in a first tentative attempt at delimitation. He makes four groups of these paranoid cases as follows: (1) Paraphrenia systemica, (2) paraphrenia expansiva, (3) paraphrenia confabulans, and (4) paraphrenia phantastica.

As the cases so grouped are not very numerous, even in large asylums, and as some of those which have come under my observation happen to be singularly well defined, I desire to briefly record them as striking examples of clinical entities, and to offer a few observations on some of the special features they present.

CASE 1. *Paraphrenia systemica*.—I. Y., tailor. Disease first showed itself when he was 35 years old. It commenced with mild mistrust, then definite delusional jealousy of his wife, followed by considerable depression. During five years he remained in this state, working in the tailor's shop, and showing little disorder of conduct, but adhering to his jealous delusions, and stating his condition was due to his enemies. He then became suspicious of everyone he came into contact with. One day he announced that he heard heavenly voices giving him spiritual revelations, under the influence of which he became excited and refused to work. Later he stated he had finished the work he had come to do, and that he had "cast down Satan." He became aggressive when spoken to, and refused to converse with his inferiors. This state continued for five years, when he stated, "I can do anything I wish; I got all my powers from God. Do you wish to be made a king? If you do, just say the word, and I will crown you where you stand!" Later he said "I am King James II of Great Britain. What do you want annoying me with your own questions?" He spoke a good deal of himself, sometimes as if in response to hallucinations, and said aloud, "Who are you?" "How dare you speak to me." Two years later he still refused to work as he "needed no clothes, all were provided for him," but to keep him from "thinking long," he made a garment which I exhibit (*vide* illustration, p. 158). You will see it is a work of great labour, showing a well-thought-out design, worked with considerable artistic ability, a marvel of patient execution under difficult conditions and with a limited selection of materials. Wrought in amongst the web of symbolic ornament we find the following: "The most High Ruler"—indicating the rank of the maker and wearer—"Mighty deliverance, Glorious Victory," "Faith," "Bible," "Pray Brothers Pray," "Naught against that prevail," "Must be born again," "Glory to God in the highest, and Peace to W. (*sic*) and to men," "Power of Prayer," "Lord if Thou wilt Thou canst make me whole," "Look and Live," "Behold he smote the Rock," "Begun and finises (*sic*) a table in the wilderness." He now said he was in the institution twenty years, and announced, "I am the dress King of Germany! I will not instruct ignorant people. I thought you were qualified to understand."

For four years he remained in this exalted state, very imperious in manner, now and again asserting his power and position, but never referring to the old persecutory delusions. The spiritual revelations still influenced him, and he had visual hallucinations. His general habits, appetite and sleep were normal. He developed phthisis, of which he died twenty-three years after the onset of his mental disorder.

This case is clearly stamped with the characteristics which distinguish the cases grouped under the term "paraphrenia systemica"—the insidious development of a continuously progressive delusion of persecution, to which are added later, ideas of exaltation without decay of the personality. A slow, progressive continuous course has issued



Vestment designed, and worked in coloured symbols, texts and ornaments by "I. V.—"
—"The Most High Ruler": a case of paraphrenia systematica.

To illustrate Dr. M. J. NOLAN's article on "Paraphrenia".



in a psychic decline with persistent delusions, also hallucinations, but without specially independent disorders of volition and without emotional dulness. Hallucinations, auditory, visual and sensory have been manifest, and ideas of influence (spiritual) have operated. Pseudo-memories play a minor part. Perception had never been disordered. The mood has changed from anxious, depressed and despairing phases at the initial stage to an intermediate stage of suspicious, strained and hostile, and finally he became self-conscious, haughty and scornful. Exaltation as to personal powers, attributes, etc., over-ride the persecutory depression. The patient's activities are influenced in the most decided way by the delusions, but in contrast to the paranoid forms of the larger group the psychic personality is well preserved; there is in fact no loss of the inner unity of the activities of intellect, emotion and volition—there is no annihilation of the intra-psychic co-ordination.

CASE 2. Paraphrenia expansiva.—H. G. C. G.—, recently deceased at age of 71, was insane for the greater part of his long life, which was spent in unceasing and unprofitable travel in pursuance of his ever-changing and chimerical projects; but owing to special circumstances and self-control he escaped certification until some two years before his death. He came of an old family stock, many members of which had shown much ability. His life-history is one long succession of impracticable schemes and undertakings of world-wide ambition. From an early age his conduct, though restrained sufficiently to permit of his residence outside an asylum, was distinctly under the influence of hallucination and delusion. These found an outlet, and to a large extent support in his associates, many of whom in America were well known as reformers, philanthropists, investigators of spiritism, advocates of the "simple life," and promoters of "settlements," where curious religious and erotic doctrines prevailed. A man of some little means, considerable culture, great enthusiasm, vivid imagination and marvellous energy, united to a soft disposition with expansive kindly feelings towards all men, he went through the world with a charming smile on his handsome face, illuminated by eyes of sparkling intelligence. An intense Nature-lover, he represented a compound of Walt Whitman and William Blake, expressing himself in something of the realistic language of the one, and the symbolic artistry of the other. His ideas originated from wide desultory reading, and strange personal experiences were thrown into the crucible of his delusional melting-pot, and transmitted into a pseudo-inspiration. His appearance, manner, and even dress became fantastic, his language and writing equally so. In adolescence and maturity he was a sensualist of a refined erotic type, but he did not in public permit himself to disregard conventions, which were antagonistic to his convictions, and which in secret he never respected. But he was always happy, expansive, and exalted, tolerating all those who, in his opinion, missed the joys of the mystic realm in which he revelled. While he fell short of being even a minor poet or a missionary with a following of his cult, he was at least a poetic dreamer, and possessed a personal magnetism which brought him into touch with strange and often more bizarre intellects than his own. Towards the close of his life he was an outstanding character in the country-side where he resided, and being a great pedestrian rambled round, calling on some trivial pretext on all the residents, gentle and simple. Garrulous, picturesque, hale, hearty and temperate, no one disliked or resented the odd visitor, whose eccentricity always interested and never offended.

Glancing back over the records of his life, we find this gentleman constantly contributing letters to the press in support of all that appealed to him, and condemning all that he objected to. At the same time he sent various poetic effusions on subjects that touched his emotions. Moreover he advocated by voice, pen and example many projects, among which may be named: The "Universal Republic," "The Simple Life," Henry George's "Land Theory," "Special Colony Schemes," "The Brotherhood of the New Life," "Municipal Reform Schemes," "The Doc-

trines of Dr. Sivartha and Mrs. Lightfoot," and "The Happy Home Colony." He was the "Vice-President of the World's Arbitration League," described as "an organisation that in time will bring about a sort of millenium by abolishing wars and quarrels of all descriptions." He launched a band of Messians for the purpose of realising "The Messianic Life," and any group coming to the colony were offered twelve acres of the tract for twenty-five dollars. He also launched "G—n's W—t All," described as "a perfect standard food for muscle, brain and nerve, with a special action on man's social qualities—marriage, religion, home and family." It was advertised with highly diagrammatic sketches of the said qualities located in the brain. He obtained much public notoriety by his scheme of "Lost and Found," described in sensational headings in newspaper articles as "Lost and Found. C— G—'s brilliant scheme to benefit mankind." "Self-appointed Waif-Master-General. He proposes to establish a system by which everything lost may be found." The scheme was to be worked by means of stamps, designed and issued by C. G—, who, being "Waif-Master-General," proposed to appoint local Waif-Masters at each post office. The United States Government, however, took exception to the issue of the stamps, hence the newspapers had the following headings: "'H. C—'s Waif-Master-General' official designation of a man arrested yesterday. Scheme to find anything in which a little green stamp is used." "Deputy United States Marshall gathers him in, but he is released on his own recognisances." "World's Arbitration League," and "C. G— held." "Proposal for a Waif Office." The stamp is described: "On said waif stamp may be seen a photo-engraving of G— himself, and above his head in a halo is the beautiful engraving of Christ before the doctors when he was twelve years old. Pointing to this, Mr. G— smilingly said, 'So we may imitate Christ's picture, words, works and ways, but if Caesar's, then arrest and *nous verrons*.'" The report goes on to say: "This very morning a lawyer offered Mr. G— \$40,000 for the goodwill of his scheme, but he declined, saying his figures were \$100,000, and a twelfth interest in all countries that would adopt it." Subsequently Mr. G— was fined, and the stamps suppressed, and so the great scheme is extinguished.

But C. G— is soon very much before the public again, this time in connection with domestic matters. He married the daughter of a lady who herself was in the public eye. She was a school teacher and married a preacher, and it is said, says the newspapers' report of the day, that he was instrumental in having his wife sent to an asylum "because she differed from him in religious matters." While in the asylum this lady wrote some books on the care and treatment of the insane. After her release she worked arduously to secure the passage of laws in the interest of the insane. Through her influence, it is said, Bills were passed by the legislature of nearly every State in the Union. Some years ago she took a special interest in lobbying for a Bill in Iowa. She followed the measure until the Bill was signed by the Governor. She succeeded in getting through a Bill to place the inmates of insane asylums under the protection of the laws by securing to them their postal rights. This lady's daughter, who became Mrs. C. G—, fell ill mentally, and her malady and its treatment were prominently discussed in the papers, where we find the following headlines: "Romantic Courtship." "Mr. G— has been a faithful husband and also a poet." "Mrs. G— case: a lady friend thinks she is being well cared for." "Out of an insane asylum." "Mrs. G— released from A—w's by her husband." "Mrs. G— case. The Marshall and Health Officer do not think it calls for interference." This refers to the fact that C. G— and Mrs. P— removed Mrs. C. G— from the asylum and placed her in a house in a cage 10 feet high, 8 feet long and 4 feet wide. Meanwhile C. G— writes to the papers—"Now what is the cause of all this fearsome increasing insanity? Lack of love, lack of charity, lack of heart-felt sympathy, lack of national every-day life, lack of national religion. My wife's case was simply feeling intensely for these evils, and trying to do too much for others, which a merciful Providence cut short by taking her into forgetfulness for a time." And in his scrap-book under a cutting headed "A case for the Humane Society," describing the condition of his wife after six weeks' continuous confinement in the cage, he writes in red ink: "Strange that the little wounded lamb delighted in her cage, and objected to anyone coming into it but W—t All G— 'Angelo'" ("Angelo" being his *nom de plume*). At this time we find in the press that C. G— was an artist going ahead with a "cycloramic painting for the World's Fair"; that "as artist W—t All manufacturer, poet,

preacher and philanthropist, he had a ten days' camping tour, returning with a series of sketches of the valley all round the horizon." He also had an exhibition at the Great Fair—an ingenious reflecting instrument for reproducing objects on a level surface. He at some time sought to solve the problem of cheap housing by making his little houses, advertised at \$3 a month, keeping them inland in winter and taking them to seaside in summer. As already stated, all went well until at the age of 69, some year and eight months before his death, he was certified as "suffering from periodical outbursts of mild maniacal exaltation, is restless and shows unnatural energy, wandering abroad, often insufficiently clothed in all weathers, shows some morbid eroticism, speaking of marrying young girls. He has some delusions of grandeur, seems unable to take proper care of himself. Goes about talking nonsense, being King of Ireland." The excitement passed off soon after his admission to the asylum. He became perfectly happy, beaming with delight on everything and everyone. When not reading and expounding what he read, he was engaged in writing love-letters. Though suffering some inconvenience from prostatic disease he rejoiced in his symptoms, regarding them as evidence of his virility. Love in the abstract and sexual relation were his constant theme, and it was difficult to determine the actual experiences from his imaginations, which were of a picturesque and graphic but never coarse type. His pseudo-memories anticipated his birth, and he vividly described his own procreation with details as to manner, time and place, and the advent of a butterfly from the garden into the room bearing his soul, which it released for its corporeal habitat at the physiological moment. Photographs show him in some of his exalted moods—leading simple life in the settlement; beside one of his monster oil paintings; as a bridegroom; bedecked with symbolism as a preacher; pointing with pride to the decorated tomb of his ancestors; and finally as one of a group in a "spirit photograph," the "spirit" being one of the disciples of Laurence Oliphant, a man who had been killed years before in a cyclone.

C. G.—was nominally a Unitarian, but in fact was one of a small set called "Aggressive Optimists," who held that each one of us carried his own hell or heaven in him, and could alone make either for himself in this life. He attributed the "spirit influences" working in him as due to souls awaiting re-incarnation. He lived up to his belief and connected his life-long failure into a cause of most perfect happiness, enjoying to the last his unceasing but ever-changing delusions. He passed away painlessly in his sleep, so even his transition was a continuance of his dreamy visionary life.

It would be difficult to meet a case of more characteristic symptoms—an exuberant megalomania, with predominantly exalted mood and slight excitement. The hallucinations appeared early and were of the "dream-like" vision type, and coloured by religio-erotic associations. His perception, orientation, memory and retention were never essentially disordered, though he sometimes indulged in pseudo-memories. His mood was always self-conscious, cheerful, unrestrained and irresponsible, and his activities were not always dominated by his delusions. There was a steady course with little change and no destruction of his psychic personality, in strong contrast to the ruin entailed by dementia praecox. Delusional occurrences were kept in the background, not brought forward and reinforced by others as in systematised paraphrenia.

CASE 3. Paraphrenia confabulans.—R. McG.—, *aet.* 44, single. Has been odd since he went to America some eighteen years ago, when he felt "things were not right at home." In U.S.A. he worked at mining, bridge building, lumbering, meat packing, ship building, concrete work, brick making, and farming. "Things were not right," so he returned to Ireland some seven years ago, and lived with his father, a farmer in fairly comfortable circumstances, doing little work of any kind. He became suspicious of his family and his neighbours, and made many delusional

statements of an alarming kind. He said numbers of men beat and murdered him, but that he was waiting to find out all their names so that he might deal with each one of them separately. He said he had great wealth in America, and proceeded to make a road for a motor car he did not possess. After a period of brooding he launched into a narration of extraordinary experiences, a mixture of persecutory and exalted delusion. When brought to the asylum he stated he was sent to another house to commit an immoral act with another man, and insisted on his right to see the American representative. Since then he has told long tales of retrospective persecution and exalted reminiscence. Each day he has a fresh narrative which he tells in a cheerful mood. When questioned definitely on the point he declares he is "quite happy." He is very loquacious, and if not led into conversation becomes desultory, breaking off suddenly with a laugh, or a feeble attempt at a play on words. Each succeeding day his narratives, from a loose association of ideas, are more or less linked up. He is usually quiet and conducts himself rationally. Coming into my office for an interview he starts off and runs on as follows: "Here we are, Doctor, very old friends. Why, when I first met you I wasn't quite four years old. I remember as well as yesterday you met me on the garden walk, and what a hot day it was! We went all round the place. I wasn't here again for seven years. Then it was Mr. S. W— (an official dead several years, and whom the patient never saw), a fine old man, took me over. I had been badly bruised and beaten. Now they have been at the old bad tricks again, and I am here to get my head fixed up. Well, we may have a trip this time to Mount Stewart again, and if Lord L— does us as well as our first visit, we shall have a right old time. What a crossing of the ferry we had that day!—how the current caught the poor old boat; why, I had been in the sea if you hadn't made me sit tight. But he made up for it at lunch—he knew who I was, so we fared well. My memory is coming back; you know that bad bash in of the skull I got broke my memory. Ah! but it's coming back. You are making a good job of me, but it will take six months yet. I know I am insane, but I'm getting better. Having plenty of money I won't need to work again. The badness is going through me, but you doctors must make a clean job of my head. By the way, what have you done with my photograph?—I don't see it here. You stood it on your table for many a day. It was a good one, the expression fine! A dear one too—I paid well for it. What was that you said the day I gave it to you? Oh! I remember—'David, it is indeed yourself!'—and the way you looked at it, and smiled at me, before you put it on that very spot, I shall never forget. You say I imagine all that, Doctor. Do I really? Well, perhaps I do. Will you come over to the garden where we first met, anyhow—you weren't more than ten years old then. I had to get away over the wall, and hurt myself badly too. The head was hurt most, but the marks didn't show in the photograph. Doctor, you *have* put it away—I miss it still." The patient is quite well conducted, and a willing worker in the wards, but says it is only until he is cured, and "he really is not R. McG., but someone else—he can't say who—a mystery, but it will come right some day. Some things one can't be too sure of."

This case illustrates a very distinct type, distinguished by the dominant rôle which pseudo-memories play in it. These pseudo-memories are of a widely diversified nature, reflecting in fact all the circumstances of life; they do not materially affect the condition of the patient, who recounts them with the reminiscent air of a *raconteur*. Now and again "the confabulatory springs of megalomania flow abundantly." Consciousness is never permanently troubled. He perceives without difficulty, gives clear and connected information, and behaves himself reasonably. His mood, in spite of persecutory ideas, is cheerful, exalted and quite happy. He is very accessible, loquacious, verbose and desultory. He has a silly tendency, and sometimes plays on words. All these features are given as forming the clinical picture of this group

of cases of paraphrenia, and the characterisation of the group delimits it from the vast mass of dementia precox and from the smaller groups of paraphrenia.

CASE 4. *Paraphrenia phantastica.*—Patient, F. E.—, æt. 43, has been insane for some twenty years, and has been all that time resident in asylums in Malay States, Switzerland, England, Scotland, and Ireland. Well born and well educated, he began life as a Civil servant, having had private school and London University education. He is of mixed descent—Scotch, English, French and Italian, his paternal great grandfather belonging to the ranks of nobility of the latter country. He attributes all his troubles to over-education by his stepmother and to family surroundings. States that at the age of 11 he lay awake at night thinking of the loss of his soul. "What else could you expect with a father a missionary and a grandfather one of the Plymouth Brethren?" He was first legally certified insane in 1905, but says he was himself conscious from 1901 that his nerves had given way. He felt then that as a junior official he was made to do "dirty work" in connection with the enforcement of Pahang law in matters antagonistic to his Non-conformist conscience. He felt "out of sorts," and finally became an inmate of an asylum in 1905. Since then he has been almost continuously resident in asylums, spending his time in miscellaneous reading and the study of languages and social problems. He considers all his confinement has been illegal, and that the disturbance of his brain, classed by all the doctors as "insanity," is "no more than nerves injured in childhood by overstrain, and now reacting rapidly in a too highly organised brain, consequent on a family history of insanity on both sides." The intense jealousy of his father and brothers has also operated against him at all times. His father was just an accidental male progenitor, with feelings of Herod; his brother, a "false friend," "hated him like Esau hated Jacob, or worse." When he came under the writer's notice he was excited, denouncing the world as all wrong in every respect, more particularly European royalty and officials. Rape was so habitual to those persons—Kings, asylum doctors and asylum attendants were the worst offenders—he would reform society and introduce polygamy. His varied reading and personal experience have resulted in the formation of a tissue of paranoid delusion, chiefly religio-sexual, and this mental state is reinforced by very frequent auditory hallucinations. The delusional growth is indeed "luxuriant, highly extraordinary, disconnected and changing." It would be impossible to convey any adequate idea of its area and diversity in anything less than a bulky volume, so I can but briefly touch on the more outstanding delusions and hallucinations at the present time. The not infrequent confabulations of non-personal experience may be mentioned as existing and as padding in his daily recitals; they are usually unimportant and ephemeral. The patient's mood is generally exalted, though he frequently assumes in conversation an air of gloom and strain, but on the whole he is vivacious and accessible. His actions are always under control, and he is orderly, clean, and he is a "busy idler," finding the days all too short for his many occupations, writing his autobiography, a novel, and his *magnum opus*, an "Exposure of the Asylum System," drawing in crayons, talking to patients specially selected as "good listeners"—a blind, senile melancholic, a broken-down farmer, he is instructing so that he may be fit for the position of a Minister in the Northern Parliament at a future date—taking long walks "on parole" through the country, swimming, hockey playing, carpentry work, attending religious services of the Unitarian church. He protests against his registration as a member of the Church of England, and expresses his intention when at liberty to join the Brahmo-Somaj, at the services of which the Bible, the Koran and the Veda are used as the celebrant may desire. He takes a vegetarian diet well, and is in perfect health, but complains of some degree of sleeplessness and of dreams and nightmares. In many of his dreams scientific subjects are set before him, "with a few carefully introduced errors to undermine his judgment."

Hallucinations.—At first were visual, "lewd and spiritual," chiefly the inferno, but the visions have ceased for some time. Then the auditory hallucinations commenced as vague, indefinite whispering, which was followed by voices, some of persons he knew, others unknown to him. These voices sometimes revile him by calling him opprobrious names; at other times they suggest evil and error to his mind. Now and again they adopt a pseudo-friendly tone in order to entrap

him. He recognises them as hallucinations, and believes they are the work of evil spirits who seek his destruction in this way. Sometimes they seem to be inside, and at other times external to his head. They give him much trouble when they suggest to him to do good things, as they know his disposition is to go strongly against any suggestion from them, and as a result he would be driven to evil doings. Knowing their motive he does the right thing to annoy them. He has then known them to argue with each other irrespective of him. At one time he distinctly heard two highly-placed officials argue as to time and place and method of his execution; he felt quite apart from them, yet had to listen to the two voices in his head. This latter class hallucination is a good example of "Les hallucinations verbales psycho-motiv," as described by Seglas: "Il s'établit alors une véritable conversation intérieure (conversation mentale) participant de tous les caractères des hallucinations motrices verbales. Tantôt le malade n'a nullement conscience qu'il intervienne en quoi qui ce soit dans cette conversation à laquelle il ne fait alors qu'assister, et qui lui semblent tenir entre deux individus ayant pris possession de lui même."

He complains of "strange feelings in his genitalia—not normal, sometimes 'feverish' and sometimes 'frigid.'" This may be due to some influence at work. He also gets hyperesthesia of hearing, and has other strange feelings in various parts of his body. Sometimes he had to lie as if paralysed. He was also made to perceive very disgusting smells which had no human source of origin. Particular parts of his body sweated at times, and the odour of the sweat was unpleasant.

Delusions.—Patient states: "I am F. C., Carnegie hero, poet, scholar, philanthropist, 'The Unlucky.' When at liberty I shall try to set the world right. Marriage laws must be put on an eugenic basis. It shall have State endowment. The best men must get many wives each, and one inferior woman must take several inferior men. Personally I shall be class A1, but owing to the bad treatment I have had at hands of Europeans I shall take native women. So far I have only had *consciously* relations with three native women—one a concubine, one a mistress, and one a native's wife. An effort was made to induce me to take a Japanese mistress, but I refused as they wanted me to go for a night's trial. The native woman left me; I did not seem satisfactory. When about twenty I was drugged by a servant who took advantage of me and gave me disease—I was unconscious like Lot's daughter. I wish to reform morals; I hope to be protector of Sakai. I shall start a magazine for all classes and ages and nations, chiefly aimed against royalty and so-called religion. I shall have a special Hindustani edition for India; also a vegetarian sanatorium on the Nilgiri Hills. My present knowledge of languages being limited to English, French, Spanish, Dutch, Italian, Greek, Latin, Ido and Esperanto, I must make up native languages in the East. I am now studying Irish, but find it difficult; the spelling is archaic and is a millennium and a half behind the times. It is more akin to Hindustani, hence Irish and Scotch do better in India than English officials. The Irish and Indians say 'I have no fear,' for example, and the Englishman says 'I am afraid.' General Smuts would make me his private secretary; in time I would not only write his letters but give him the ideas. I am afraid some one is impersonating me now, reaping great advantages of wealth, position and influence. In order to win me over, overtures, which I rejected, have been made to me to have immoral relations with a princess. I have been described as the bastard son of a royal duke, and also as the rightful Duke of Normandy, but I prefer my own noble descent. I hope to do away with all property and to nationalise the land, moderate compensation to be given to the owners. Asylums as now constituted must be abolished. At present decent men and women are certified by medical perjurors for love of money. Wrongs unspeakable are performed with impunity by doctors, attendants and patients. Attendants are largely the scum of lower, and doctors the dregs of the upper classes. So long as medical men declare that anyone who hears voices, will do anything in the bidding of the voices, and that those who consider themselves persecuted are always suffering from nerves, and the public take it all in without inquiry, is it not fit to drive one to despair, doing nothing, even writing nothing. That is why I write in shorthand—for general illegibility, for speed, for small space, for cheapness. All political parties fight shy of the medical profession—the old are weary, the young are heedless. I have failed in my duty as a potential husband and father. May I at least succeed in denouncing the plague of

plagues of Britain. I am on in years now, and may go as an anti-Christian missionary for a small salary to Malay. The visions have stopped and the voices I am resenting. I attribute them to the fact that my grandfather's grandfather, who was a Roman Catholic priest, joined the Church of England and married. Or they may be due to the revenge of the Hindoo Deities who were offended by my father at Muthra. Or it is quite possible they are due to the jealousy of Sir H. C.—, who was once my chief, and who was a student of demonology, and it was said had secretly become a Mahomedan. The evil spirits are very often put into the bodies of other living men and women, who carry out the work of persecution, or they may be disembodied in some higher state than man, as we must conclude there is so much below man in the scale of development, there must be as many grades above him, between him and God. Yes, I can resist their influence. Once only I was overcome by it, and that was to save a life. A voice once said to me, 'If you tell Dr. F—that we threatened to take your life, we will kill Dr. F—as well as yourself,' so in the circumstances I did not tell."

Now we have in this case a good example of the final group. It is marked by a luxuriant growth of highly extraordinary disconnected and changing delusions. An unhappy childhood is followed by an unhappy and introspective adolescence, and later still by marked ill-humour and discontent with surroundings. Ideas of persecution now begin, and later hallucinations of sight and dysæsthesia. Next come delusions of personal influence—"evil spirits"—and these take up a large share of the morbid picture. Sexual troubles are also prominent. Pseudo-memories are not infrequent, and the confabulations are of non-personal experience. The patient's mood is indifferent, gloomy, strained, exalted or threatening according to the delusion in dominance at the moment. There is little injury to volition; mental activity remains strikingly well preserved. Conversation is sometimes somewhat confused, is always vivacious and accessible, and as there is an absence of volitional disorder he acts quite reasonably, though the delusions are extremely luxuriant.

The student of morbid psychology cannot afford to disregard the close examination of cases which exhibit disorder of certain definite paths of mentality. In the cases under review there is a very distinct disturbance of the intellectual faculties as in contrast to the emotional and volitional so very definitely affected in dementia præcox. Kraepelin, indeed, when presenting his series of morbid pictures, claimed only that they were the first steps of a preliminary inquiry. We all know, however, how far those steps have taken us in a scientific understanding of mental disease. They have brought us face to face with types heretofore crowded out by reason of their comparative rarity in the vast masses of common mental disorder. In this recognition we come to a closer understanding of the working of that most intricate complex and mysterious organ, the brain as an organ of mind. In following up such cases we are not only viewing the ravages in the path of the storm, but we trace the damage along the lines of least resistance, and this enables us to judge to some extent the relative importance of the mental attributes in the maintenance of normal mentality.

The Use of Luminal Sodium in Epilepsy.⁽¹⁾ By J. TYLOR FOX,
M.A., M.D.Camb., D.P.M., Medical Superintendent, Lingfield
Epileptic Colony.

THE history of the drug treatment of epilepsy is not an encouraging one. "There is scarcely a substance in the world," says Sieveking, "capable of passing through the gullet of man that has not at one time or another enjoyed the reputation of being anti-epileptic," and it appears rather an impertinence to report upon yet another drug to be eulogised, tested, doubted, and perhaps ultimately discarded like so many of its predecessors. This paper is, indeed, no more than a preliminary note on the use of luminal sodium, and much more extensive trials over long periods are required before the value of the drug can be finally estimated.

Luminal was first tried in Germany in 1912, and has been fairly widely used, but I have not come across any record of the results obtained from it in England or America.

Luminal is phenylethylmalonylurea, or a derivative of veronal in which one of the ethyl groups is replaced by a phenyl radicle. Luminal sodium is a soluble derivative of luminal, and I have given it in solution, with hot milk or water, in doses of 1 to 2 gr. once a day, usually at bedtime. The dosage is small as compared with that of continental observers, who consider that 3 to 4½ gr. can safely be given to adults over prolonged periods, provided that the patients are under adequate supervision. For the purposes of investigation sixteen cases of ordinary epilepsy in children or adolescents were chosen; the patients were all liable to major attacks at fairly regular intervals, and none showed signs of marked mental defect or deterioration. It is essential to confine statistical investigation to patients whose fits show a regular incidence, unless very long periods of time are under review. Most of the patients were taking bromide when the luminal was started, and the daily dose, which in no case exceeded 30 gr., was continued. This course was, no doubt, open to some objection, but had it not been followed, it would have been impossible to say whether any modification of the fit incidence was due to deprivation of bromide or to the luminal sodium. In this connection it is perhaps worth mentioning that I have known stoppage of bromide to be followed by a considerable lessening in the number of fits. All the patients were under the continuous supervision, both by day and night, of experienced nurses or attendants, so that the fit statistics should be complete.

The accompanying table shows the age of each patient, the daily dose of luminal sodium, the number of attacks recorded in each of the last six

⁽¹⁾ A paper read at the Spring Meeting of the South-Eastern Division, May 4th, 1921.

months before the commencement of the administration of the drug, and the number recorded in each of the first three months of its administration, the average number of fits per month during those two periods, and the gain in weight during the three months of the drug treatment.

Table Showing the Effect of Luminal Sodium upon the Fit Incidence of Sixteen Young Epileptics.

	Sex.	Age.	Daily dose.	Average fit incidence.		Gain in weight.
				Six months prior to administr.	Three months of administr.	
A. E. S—	M.	18	2 gr.	4·3	1·0	8 lb.
Y. L—	M.	22	2 "	6·8	0·0	8 "
C. J. F—	M.	16	2 "	7·5	4·0	8 "
A. E. C—	M.	17	2 "	9·7	2·3	7 "
L. J. H—	M.	13	2 "	4·5	3·3	2 $\frac{1}{2}$ "
			reduced to			
E. G. T—	M.	21	1 gr.	6·0	0·7	Lost 5 $\frac{1}{2}$ lb.
C. W. S—	M.	19	2 "	8·7	5·3	Gain 7 lb.
L. T. H—	M.	15	2 "	6·5	2·3	6 lb.
E. A. O—	M.	11	1 $\frac{1}{2}$ "	7·3	0·3	5 $\frac{1}{2}$ "
C. H. C—	M.	12	2 "	8·3	4·7	5 $\frac{1}{2}$ "
R. G. S—	M.	12	1 $\frac{1}{2}$ "	4·2	0·0	1 "
R. S—	M.	11	1 $\frac{1}{2}$ "	8·8	4·7	5 "
			reduced to			
N. E. P—	F.	14	1 gr.	6·0	4·0	2 $\frac{1}{2}$ "
L. C. D—	F.	15	2 "	6·2	5·3	1 "
A. G—	F.	15	2 "	7·5	2·0	10 "
H. H—	M.	20	2 "	2·3	0·7	7 "

Attention may be particularly called to two points in the figures shown. In the first place there is a marked reduction in the fit incidence in every case. This uniformity of reaction to the drug places it, I believe, in a category apart from other anti-epileptic remedies. I have drawn up and published elsewhere similar tables dealing with the effects of belladonna, digitalis, and of borax upon epilepsy, and they show no such uniformity of reaction. Borax, indeed, is the only one of the three which appears, when the figures are studied in bulk, to have any effect at all in the reduction of fit incidence. Various statistics of the fit incidence under the influence of bromide have also been published, but in none that I have seen have the beneficial results been so uniform as in this table. This point is worth stressing, because it is a matter of common knowledge that marked benefit, or even a complete arrest of fits, may follow the adoption of any new line of treatment, therapeutic or dietetic, or from a chance change in the environment of any individual.

patient. Secondly, the considerable increase in weight that occurred in almost every case can be no mere coincidence. The average increase of the sixteen cases works out at just under five pounds, and it will be noted that only in one case is a loss of weight recorded.

So much for the advantages of the drug. Are there any drawbacks to its use? Careful observation was made of the mental and physical conditions of all the patients. In no case was complaint made of headache or abdominal pain; nor were there any acute outbursts of excitement such as have been recorded by continental observers. In five of the sixteen cases the general mental condition of the patients was apparently unchanged; in three the patients were reported as rather more irritable than formerly, while in four they were evidently more cheerful and alert. One case, L. C. D—, a girl, æt. 15, has become distinctly more dull since taking luminal sodium; her speech is hesitating, and she appears to have trouble in finding her words. It is to be noted that her fit record shows less improvement than that of any of the other patients, and that her increase in weight is correspondingly small. Two boys, L. J. H—, æt. 13, and R. S—, æt. 11, became sleepy after taking the drug for a few days. In both cases the dose was probably too large, and improvement followed on its reduction. Finally, in the fourth month of administration, one boy, C. H. C—, æt. 12, became very dull and lethargic, and could only with difficulty be persuaded to eat his food. The drug was stopped and the boy began to get back to his normal condition some days later, but as he had an exactly similar attack some time ago, it does not seem reasonable to ascribe his condition to the luminal sodium.

As in the case of other drugs, luminal sodium seems to give best results in cases liable to major epileptic attacks; cases who suffer from momentary losses of consciousness, or from periodic short attacks of altered consciousness with automatism, are notoriously inaccessible to drug treatment. Nevertheless there is recorded a diminution of momentary attacks in three of the patients in the table who were liable to them; and one of the most satisfactory cases we have had is that of a boy, æt. 9, who was liable to very frequent psychic attacks with automatic movements, the number and duration of whose attacks have been very greatly diminished by three months of luminal treatment, and who has become, as a consequence, very much brighter mentally.

The modern view of the psycho-genetic origin of epilepsy has led some writers to discount the value of any treatment directed to reducing the fit incidence or arresting the fits. Fits are said to be protective reactions away from an environment to which the epileptic, with his egocentric sensitive temperament, cannot adapt himself, and to stop fits is to court further mental trouble. I have seen mental disturbance follow the sudden cessation of fits in an old-standing case of epilepsy, but more

commonly the patient becomes more alert and cheerful when his fits stop, and I have no fear that in using a drug that will arrest fits we are doing the patient any disservice, provided that we are satisfied that the drug itself has no prejudicial effect upon him.

It is, of course, not claimed that luminal sodium, or any other drug, has any curative effect upon the disease ; at best it only arrests or lessens the frequency of the convulsive attacks.

Mental Disorder resulting from Encephalitis Lethargica.⁽¹⁾ By
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THE following brief notes refer to a case which I think presents certain features of interest. It is quite a common thing for children of tender years to be sent to mental institutions, but it is somewhat unusual for mental disorder of such a degree as to require certification to occur in a boy æt. 10 who had previously been of sound mind. For this reason it is thought that a few details about such a case may be worth recording.

The patient, æt. 10, was certified and admitted to the Newcastle Mental Hospital on December 29th, 1920, the medical certificate stating that he was irresponsible, subject to frequent and sudden periods of excitement, when he became unmanageable, that he had tried to jump over the window, to put his head in the fire, and to stab his mother with a knife.

There is no previous family history of mental disorder. The patient did well at school, and was regarded as perfectly normal in every way until he had an acute illness in the summer of 1920. This illness began about July 8th, the first symptom being pain in the head. Two days later twitchings affecting the whole body developed. About this time he became very drowsy, and on one occasion slept continuously for sixteen hours. His medical attendant diagnosed epidemic cerebro-spinal meningitis, and had him sent to the local fever hospital.

He was admitted to the fever hospital on July 12th. Here the case was kept under observation, and the diagnosis of encephalitis lethargica was subsequently made. Lumbar puncture was performed on fifteen occasions, temporary improvement resulting from each puncture. Nothing was found in the cerebro-spinal fluid to justify either a tubercular or septic meningitis. The patient was discharged on August 25th apparently fit and well, and with no mental derangement.

⁽¹⁾ Paper read at the Spring Meeting of the Northern and Midland Division on May 12th, 1921.

On his return home he came under the care of his own doctor, who says: "When he came home he had some inversion of the left foot, but his mother tells me he was then normal mentally. About the beginning of October he began to give way to uncontrollable temper in which he threatened violence both to himself and others, and he also developed twitchings of the left side. I have never seen these attacks of violence, and so depend entirely on the mother's description; but I can answer for it that the whole family is terrified."

His mother tells me that since coming out of hospital he slept badly, and refused to stay in bed. He was excitable, unable to control himself, and had violent fits of temper. She states that this violence occurred by night, her description of an attack being that "he becomes restless, runs about, loses control of himself, shrieks, and becomes violent. Next morning he is depressed, quiet, has little appetite, but is then no trouble." Ultimately he became quite unmanageable at home, he took a knife to his mother, and threatened to cut his brother up. He was sent to the workhouse on November 6th, where he remained till December 6th. His mother states that on his return home he was in no way improved—he took a hatchet to his sister. He was again sent to the workhouse on December 20th, where he remained till his certification.

On account of his violence the day-school authorities refused to have him at school with the other children; and I can quite imagine that it was rather a difficult problem for those concerned to know where to send him.

On admission his general appearance struck one as being different from that of the patients usually admitted. He looked a bright, intelligent boy, rather pert and forward in manner. There were certain features of note in the nervous system. There was inversion of the left foot, with some liability to trip while walking. The plantar response was flexor, knee-jerks normal. There was twitching of left arm and leg. This was most marked in the arm—an involuntary sudden movement of the whole limb occurring at frequent intervals. As regards his mental state, the prominent feature was lack of self-control. He was restless and kept getting out of bed and interfering with the other patients. At night he became very troublesome and was a source of great annoyance to his fellow patients. He persistently asked to be sent home. His intelligence as estimated by the usual education tests is quite good; he has a fair knowledge of the elementary subjects, but there is marked lack of power of concentration, his attention being very easily diverted. There also appears to be some loss of the moral sense.

There is one feature in which he differs considerably from the imbecile and the commoner type of mental case, namely his general alertness to things about him.

So far there has been no real improvement in his general mental condition ; he is, as one might anticipate, rather more easily managed after some weeks' residence, but from the point of view of permanent improvement the outlook does not appear hopeful.

To summarise, the points of interest in this case appear to be that we find definite acquired mental disorder occurring in early life, following on an acute disease which has quite recently been described and which has attracted a good deal of attention ; that the mental disorder is associated with manifestations of cerebral lesion, and that the disorder itself differs in several respects from imbecility and the commoner forms of insanity.

Since writing the above a second case of a somewhat similar nature has been admitted. This was a boy, æt. 15, who was sent to the fever hospital on January 19th, 1921, suffering from encephalitis lethargica, and was there for ten weeks. He developed mental symptoms while at the fever hospital, and was sent from there to the Union Hospital.

He was admitted to the Newcastle Mental Hospital on April 27th. The prominent features in this case are childishness, irresponsibility, and a marked loss of the proper fitness and proportion of things, well shown by his contradictory statements about ordinary events. In this case there are no physical manifestations to note. He is described by his mother as being always a "nervous" boy, but he did quite well at school, and the acute illness would appear to be the cause of the mental breakdown.

Occasional Notes.

The Trend of Psychiatry in England and Wales.

THE Journal published by authority of our Association would be singularly incomplete did it fail to chronicle some recent occurrences affecting the world of psychiatry in England which may have perhaps more than a passing effect on lunacy administration and the care and treatment of the mentally afflicted.

Our Association has never been unmindful of the defects in the present Lunacy Acts, and for many years has steadily pressed for reform, especially in the direction of some better method of dealing with cases of insanity in its incipient and acute stages.

In 1911 it appointed a committee to consider the "Status of Psychiatry, etc., " the outcome of which was a valuable report issued in 1914 (1) advocating the establishment of clinics in connection with the universities, medical schools, and general hospitals, admission thereto to be on a voluntary basis, except in certain cases where it might be

desirable to have power to detain for a limited period on notification to the Board of Control ; the admission of voluntary boarders to all public mental hospitals ; the abolition of Poor-Law intervention ; the establishment of research laboratories and teaching centres ; study leave for medical officers ; facilities for medical officers to be married men, etc. Another recommendation was that a conference of persons and representatives of authorities interested and concerned in psychiatry and asylum management be convened.

In January, 1918, an English Lunacy Legislation Sub-Committee of the Association commenced its labours and produced a report in November of the same year. Its purpose was to show how and in what directions the Lunacy Acts should be amended to carry out some of the recommendations of the Status Committee. The establishment of diplomas in psychological medicine and courses of training in psychiatry at the universities and medical schools is chiefly due to the initiative and efforts of our Association ; and its Parliamentary Committee has ever been active and strenuous in guiding any proposed lunacy legislation in the right direction.

All this movement in the direction of reform and advancement has gone on solidly and unceasingly, and were the real facts of the situation known more generally, the unhappy impression that the mental services require waking up to their responsibilities created by some recent publications and by the activities of certain irresponsible and self-constituted reformers would not have prevailed. As an actual fact it was the public that needed awaking and not the mental services ; and just as it has happened in other matters, a crusade of exaggeration, calumny, and alarm has done as much, perhaps even more, to stimulate the present revival of public interest in the welfare of the insane than legitimate propaganda based on hard fact and careful thought. It is true, as Dr. Claye Shaw (2) recently wrote, that such outbursts against the Lunacy Acts and their administration are periodical and commonly burn themselves out without advancing matters, but we are hopeful that the general public are at last really roused to the necessities of the situation and on this occasion mean business. The danger is that the chief instigators may overdo it, and kill the interest they have successfully evoked. The mental hospital medical and nursing services have for years been subjected to suspicions, neglect, discouragement, even thinly disguised aversion, so much so that they have developed a hide of almost armadillo like texture. A further instalment, even of an extra virulent variety, is a small matter if thereby the public can be brought to give more constant and serious thought in the work of mental hospitals and welfare of the insane.

We need the sympathy, encouragement, and co-operation of the public. We invite inquiry and investigation, for we are confident that

the closer the treatment of the insane and the administration of the mental hospitals are looked into, the more apparent will it be that the chief hindrance to progress is the still archaic knowledge of people generally as regards mental affliction, and their ignorance of the work and aspirations of those fellow citizens whose life's work is the care and treatment of the insane.

Fortune has not favoured either the Association or such pioneers of fairly recent times as Brudenell Carter and Cooper of the London County Council in their efforts to secure greater efficiency in the treatment of mental diseases. It is only now that the behests of the late Dr. Henry Maudsley are definitely coming to pass after an unavoidable delay of nearly fifteen years ; the several Bills that have been promoted in Parliament with the same or similar objectives have all come to naught chiefly through failure to agree on the *modus operandi* ; nor have the praiseworthy efforts of such recent reforming agencies as the Mental Hospitals Association met with any better success.

Without, however, going too far back into history, we may record that some general interest was aroused by the appearance in the autumn of 1918 of a book, *A Plea for the Insane*, by Dr. L. A. Weatherley. Much of it members of our Association could cordially agree with, and it no doubt did good in some quarters, though, as the *British Medical Journal* (3) remarked, it was marred by the way in which the subject was handled : " Personal feelings are expressed with extravagance and some bitterness, and opinions are put forward with a lack of moderation which will not add to the strength of the case in the eyes of serious readers." About the middle of last year another book on the same subject appeared, *The Experiences of an Asylum Doctor*, by Dr. Montague Lomax.

Both these publications were addressed to the general public. The latter author in his introduction says : " Had it been addressed to the medical profession, it would have been very differently written," which presumably means that greater care would have been taken in presenting the legal and administrative data, an accurate knowledge of which is expected from even a junior medical or lay officer of an asylum. The former book had the advantage of being written by a medical man with long experience in dealing with the insane and not unknown to psychiatry, but no such claim can be made by Dr. Lomax, who confesses that his sole experience of asylums was two months in one and nearly two years in another, and that his facts are chiefly taken from his experience in the latter ; and this, too, was during the war, when few if any of our civil institutions were functioning normally. As Mr. Keene pointed out in a letter to our Journal (4), Dr. Lomax even fails to quote accurately the very Act of Parliament the provisions of which he set himself out to amend ; and other writers have pointed out serious mis-

statements regarding the duties of the Lord Chancellor's Visitors, the appointment of Commissioners of the Board of Control, the certification of pauper lunatics, etc. His imperfect knowledge and brief experience of his subject is betrayed on almost every page, and what might have been a valuable contribution to the only too scanty reliable literature on the organisation and management of mental hospitals will be chiefly remembered by the acute controversy it aroused, and the fillip it gave to the growth of a miasma of slander and mendacity regarding the character and conduct of mental nurses and the treatment of patients in the mental hospitals, and which has put the relatives and friends of patients to much unnecessary anxiety, even alarm.

As a guide to mental hospital reform Dr. Lomax's recommendations are either thoroughly reactionary and almost as medieval, if correctly reported (4), as his views on the nature and origin of mental disease, or have been the established practices at the great majority of mental hospitals for years, or again matters which the much-criticised medical superintendents have already urged. "A little knowledge is a dangerous thing" is again true, and Dr. Lomax can be as little complimented on his recent book as on his adoption by the National Council of Lunacy Reform, a body which so far has distinguished itself chiefly by its cruel, cowardly, and contemptible attacks on the mental hospital workers. In another place we report the appointment by the Minister of Health of a Committee "to investigate and report on the charges made by Dr. Lomax, etc." Dr. Lomax, was invited to give evidence, and after consenting withdrew on a plea we consider trivial, having regard to the gravity of his statements. Perhaps, however, it is true of him that "He who fights and runs away, lives to fight another day," and there may yet be an opportunity of refuting his allegations. The National Asylum Workers' Union also declined to appear, for reasons which many will sympathise with.

However, to leave this unsavoury aspect of the subject, we can next record that the recommendation of the Status Committee in 1914 regarding the convening of "a conference of persons and representatives of authorities interested and concerned in psychiatry and asylum management" materialised early this year, when Sir Frederick Willis, K.B.E., C.B., chairman of the Board of Control, convened a conference on lunacy administration and the treatment of persons suffering from mental diseases, between the Commissioners of his Board and Medical Superintendents and Chairmen of Visiting Committees of County and Borough Mental Hospitals, and Medical Superintendents and Chairmen of Managing Committees of Registered Mental Hospitals and certain others.

The Conference met on January 19th and 20th, 1922, at the County Hall, Spring Gardens, London, and Sir Frederick Willis is to be congratulated on the satisfaction it gave and the success it achieved—a

success in no small measure due to his tactful and business-like conduct in the chair, a success, we hope, which will lead to such reunions becoming annual occurrences. The proceedings (6) were afterwards published, and should act as a sedative to the feelings of many people lacerated by other recent publications and press utterances, while at the same time pointing out directions which true and sound reform should take. The Right Hon. Sir Alfred Mond, Bart., M.P., Minister of Health, opened the proceedings with a speech showing a fairness of mind and a breadth of view which, we trust, is a happy augury for the future of psychiatry in this country.

The most recent event we desire to chronicle is the steps which are being taken to form a National Council for Mental Hygiene, and announced through the columns of the *Times* by Sir Courtauld Thomson, K.B.E., C.B. (7) Our friend and ally France has already taken this step, and the communication on this matter by Dr. Henri Colin at the last annual meeting assumes even greater importance. (8) A meeting of the inauguration committee has been called for May 4th, 1922, at the Rooms of the Royal Society of Medicine, at which, it is hoped, there will be a good attendance of members of our Association. In the meantime communications should be addressed to the Hon. Secretary, National Council of Mental Hygiene, 51, Green Street, W. 1.

As to how far this project can be fitted in with a similar proposal made by Lieut.-Col. J. R. Lord at the recent Conference on Lunacy Reform (9) remains to be seen, but no doubt the strong advisability of seeking the sympathy and co-operation of the local authorities in actual charge of the welfare of the insane will receive due consideration.

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- (1) *Journ. of Ment. Sci.*, p. 667 *et seq.*, October, 1914.
- (2) *The Times*, January 10th, 1922.
- (3) *Brit. Med. Journ.*, p. 605, vol. ii, 1918.
- (4) *Lancet*, p. 828, October 15th, 1921.
- (5) *Journ. of Ment. Sci.*, p. 572, October, 1914.
- (6) London : His Majesty's Stationery Office, price 2s. 6d. net.
- (7) *The Times*, March 29th, 1922.
- (8) "Mental Hygiene and Prophylaxis in France," *Journ. of Ment. Sci.*, p. 459 *et seq.*, October, 1921.
- (9) *Vide Proceedings*, p. 104 *et seq.*

Progress of Psychiatry in the Union of South Africa.

As announced in the July number of the Journal, 1921, we had received the first report of the Commissioner of Mentally Disordered and Defective Persons for the Union of South Africa, which covered a

period, 1916-18. Dr. J. T. Dunston, who has held this post since November, 1916, was given a cordial welcome by the Association at its Annual Meeting in 1921, when he read a very interesting and instructive paper on "The Problem of the Feeble-minded in South Africa." We have since received his second report, which is for the year 1919. We are therefore in a position to appreciate the progress psychiatry is making in the Union of South Africa under the guidance of this able administrator and alienist, and the encouragement of successive Ministers of the Interior (now Mr. Patrick Duncan) and Col. H. B. Shawe, the permanent head of the Department.

At the date of the Union, the lunacy laws of the several States and institutions for the treatment of the insane were placed under the administration of the Minister of the Interior. It soon became apparent that a consolidating law was urgently needed to secure uniformity of procedure, and to bring the various laws into line with modern legislation elsewhere regarding the care and treatment of the mentally disordered or deficient. What was more urgent still was the problem of proper accommodation for the patients, which was lamentably inadequate to requirements and for the most part highly unsuitable, chiefly in the Cape, where four out of the five institutions for the insane were originally convict stations or military barracks. Patients were kept in gaols and other unsuitable places for long periods awaiting vacancies at the mental hospitals, and all kinds of expedients resorted to at the latter institutions to increase their accommodation, especially for acute cases.

No less than £144,000 was spent on buildings and repairs during the first three years of the Union, but it became obvious in 1912 that a much larger sum would need to be expended before it could be said that the position was satisfactory.

In April, 1913, a definite move was made when the House of Assembly appointed a Select Committee to inquire into the adequacy or otherwise of the provision in the various Provinces for the accommodation and treatment of persons of unsound mind. With amazing celerity this committee presented its report in a month's time, with fruitful results.

The sum of £350,000 was voted to be expended over a period of four or five years in carrying out a carefully prepared scheme for extensions to existing institutions and the establishment of new institutions and the closing of others. Two new mental hospitals were to be established. The extensions covered the provision of admission blocks at the mental hospitals, at which early and acute cases could be received and treated without the necessity for admission into the ordinary wards of the institution, also ample grounds for exercise and recreation and to afford opportunities for dairying and farming. Criminal patients were to be segregated in one institution. It was proposed to close three of the

older institutions to mental patients, but later it was found possible to adapt two of them as industrial colonies for the mentally defective.

Lastly, and not least, the Legislature passed an Act (The Mental Disorders Act, No. 38 of 1916) which embodied all the recommendations of the Select Committee on the care and treatment of the mentally disordered and deficient. Examinations of the provisions of this Act, which came into operation on November 1st, 1916, show that psychiatry in South Africa proposes to advance along sound lines, and that it is ahead of the mother country inasmuch as it has managed to place on its statute book an enactment which embodies progressive ideals we have long aspired to in this country without material success.

The Act covers all cases of mental disorder or defect, and thus recognises the unity of the problem of the insane and mentally deficient. The medical administration of these services is united in the person of the Commissioner of the Mentally Disordered and Defective Persons.

It sanctions the treatment in general hospitals of incipient cases of mental disorder. The object was threefold. In the first place it was intended to give medical practitioners an opportunity of treating and following up their own cases of mental disorder and defect; secondly, that definite clinical departments for study and research should be established in large hospitals with medical schools; thirdly, by removing the stigma attached to admission to the mental hospitals, it was hoped it would lead to adequate treatment being sought at an earlier stage of the mental illness. Though it has not yet been found possible to give effect to this provision, South Africa is to be envied in that it has removed all legal obstacles in the way of the most enlightened and effective treatment being readily available for occurring insanity in its incipient and acute stages.

Under this Act discretion is given to commit patients to "single care" instead of to a mental institution; voluntary boarders are admissible to all mental hospitals, and there is power to send for observation to a mental hospital persons awaiting or during trial who show evidences of mental derangement.

Feeble-mindedness as defined by the Act excludes imbeciles and idiots, but, in addition to the usual defect who cannot "make good," etc., it includes children permanently incapable of receiving proper benefit from instruction in ordinary schools by reason of mental defectiveness. Feeble-minded persons thus defined were brought under the control of the State for the first time. Investigations by Dr. Dunston and his collaborators show that they are to be found in ordinary schools (84 per cent.), orphanages (13 per cent.), industrial schools (7 per cent. to 14 per cent.), reformatories (10 per cent. to 25 per cent.), mental hospitals (13 per cent.), rescue homes, etc. (25 per cent.). Similar investigations regarding criminals, prostitutes, and those in receipt of

poor relief have yet to be made, but in other countries the percentage of feeble-minded has been found in these classes of the community to be 10, 50 and 21 respectively. South Africa is fully alive to the importance of this problem as affecting the mental health of its people and the material prosperity of the country generally. Steps have been taken to deal with the feeble-minded in reformatories and industrial schools, and for this purpose these institutions are now regularly inspected by the Commissioner himself or by deputy.

South Africa, like other countries, has felt the economic stress engendered by the Great War, which has delayed the putting into operation of the full programme of psychiatric advancement sanctioned by its legislation. Although much remains to be done it can be congratulated on the progress already made. The problem is complicated in that it involves both white and native races, but the remedies proposed in both cases are based upon the same enlightened ideals, though the treatment will need to vary to suit the circumstances of each. We foresee a great future for psychiatry in South Africa and our Association will watch future developments with the keenest interest.

The Resignation of Sir James Crichton-Browne.

There is something pathetic in the connotation of the term "resignation." It implies an acquiescence in or a submission to the inevitable lapse and flow of the years, reminding some earlier and others later of the finality of human efficiency. In this instance, however, the chariot of time has borne its distinguished occupant beyond the allotted span, but has nevertheless preserved his mental and physical activities without any sign of failure or flagging.

In some instances, as Lord Lytton said, resignation is interpreted as "our day is come and with bitter thoughts," but on this occasion there is the realisation that the task of fulfilling a responsible and dignified office, however congenial, may, if unduly prolonged, involve a strain at a time when Nature demands repose. Thus Sir James Crichton-Browne surrenders an office which he has greatly dignified, and which he has also maintained with sympathy, tact, courtesy and skill, and this for a period of 47 years—a longer official service than has been rendered by any of his distinguished predecessors. The first physician to become the Lord Chancellor's Visitor in Lunacy was Sir Donald Hood, of Bethlem Royal Hospital; another was Dr. Robertson, of Haywards Heath Asylum, the translator of Grissinger's German Text-book, and a third was Sir John Bucknill, F.R.S.; but Sir James Crichton-Browne, M.D., F.R.S., LL.D. (Aberdeen and St. Andrews), D.Sc. (Leeds), adds a further lustre and distinction to the office he now relinquishes.

Some of the older medical superintendents realise with gratitude that they hold their posts through the support and recommendation of Sir James. It was his special interest in research work that helped Darwin to complete his most valuable work on the expression of the emotions, and it was his interest in pathology that kindled the enthusiasm of his colleagues and assistants at the West Riding Asylum, where he and Ferrier, Bastian, and Bevan Lewis first investigated the physiology of the cortex of the brain upon an experimental and scientific basis. He has always been interested in matters of health, and was until this year the President for 20 years of the Sanitary Inspectors' Association, his annual oration being an event which was always keenly anticipated in health circles and being related to prevention rather than cure. His chapter in the *Book of Health*, edited by Sir Malcolm Morris, has been widely read in every English-speaking country.

One of his most marked accomplishments has been his public speaking. He has always been regarded as the modern Demosthenes, not only without his physical disadvantages, but on the contrary his eloquence has been aided by an impressive personality, a convincing reasoning and a choice of language which has adorned his style and oratory, his great abilities in this particular direction having made him an appreciated and popular figure at many public functions. The first Maudsley oration delivered in 1920 at the Royal Society of Medicine will long be remembered by those who heard it.

Sir James Crichton-Browne has contributed extensively to the literature of our time and his medical writings have also been numerous. His work on the over-pressure of school children will remain a classic. It was his privilege to be the first Lecturer upon Mental Diseases to the Newcastle Medical College as well as to the Leeds School of Medicine, and he was on the staff as Lecturer to St. Mary's Hospital. His Presidency of the Medical Society of London and of the Medico-Psychological Association, as well as of the Neurological Society before its amalgamation with the Royal Society of Medicine, will be in the memory of many of the members.

Sir James Crichton-Browne has secured the respect, the admiration and gratitude of many of the wards in Chancery, to whom for so many years he has been the intimate friend and faithful guardian.

All who are engaged in the work of relieving the mentally afflicted will follow Sir James Crichton-Browne into his retirement with happy memories, and will wish him the freedom and leisure which he has so well deserved.

Part II.—Reviews.

The English Prison System. By Sir EVELYN RUGGLES-BRISE, K.C.B.
London: Macmillan & Co. Pp. 275. Price 7s. 6d.

Sir Evelyn Ruggles-Brise, who has just retired from the position of Chairman of the Prison Commission after twenty-five years of service, has in this book published an account of the English prison system which is of wide interest.

In the preface and early chapters he traces the steps by which throughout the civilised world the severity of the old penal laws have been mitigated, and modern ideas of the uses of punishment have been generally adopted. In the light of modern opinion a system has been evolved which, while upholding the coercive, deterrent, and retributory attributes of punishment, recognises the principle that it must also be as far as possible reformatory, the problem being how far the rights of the State must be asserted without involving unnecessary and irretrievable damage to the individual. The days of treating criminals in the mass have gone, and it is now universally recognised that each case must be dealt with on its merits and after study of the individual delinquent. This question has been well dealt with in America by Dr. Healy in his valuable book on *The Individual Delinquent*. Modern criminologists also thoroughly realise the futility of short sentences of imprisonment for minor offences.

Much valuable work in educating public opinion has been accomplished by the International Prison Commission at their quinquennial congresses, one of which was to have been held in London in 1915 under the chairmanship of Sir Evelyn Ruggles-Brise, had not the Great War intervened.

The story of the gradual development of the English prison system is admirably told in the chapters relating to penal servitude and imprisonment. At the present time both convict and local prisons are under the control of the Prison Commissioners, who act subject to the direction of the Secretary of State, who is himself responsible to Parliament for their administration. As the result of the report of an Inquiry in 1895 the Prison Act of 1898 was passed. Under this Act, with the subsequent improvements embodied in the Criminal Justice Administration Act, 1914, the whole prison system has been placed on a humane and progressive basis. This country can no longer be accused of callousness or inhumanity to the criminal. During his incarceration he is under close observation physically, mentally, and morally, and every effort is made to reform him from his evil ways. The important position held by the Medical Officer of the prison is now fully recognised.

The legislation of 1908 deserves more than a passing mention. In this year the Children's Act was passed, which practically forbids imprisonment before 16 years of age, and thus withdraws all persons under 16 almost entirely from the control of the prison authorities. The Prevention of Crime Act, with which the name of Sir Evelyn Ruggles-Brise will always be closely associated, also became law. This

very important statute deals with two categories of evil-doers who represent the opposite poles of criminality, namely, the juvenile offender and the habitual criminal. Under what is now familiar as the Borstal system, juvenile offenders between the ages of 16 and 21 who, by reason of their criminal habits, tendencies, or evil associations, require detention under such instruction and discipline as may be most conducive to their reform and the repression of crime, can receive a sentence of detention in a Borstal Institution for a term of not less than two nor more than three years. During this period they receive training and instruction with every encouragement to reform, and on discharge are assisted to keep on the straight path by the aid-on-discharge societies. When an offender is found to be an habitual criminal, the court has power to pass a special sentence ordering that on the determination of the sentence of penal servitude, he may be detained for a period not exceeding ten nor less than five years under "preventive detention." Whilst undergoing this sentence special endeavours are made towards the reformation of the individual, and to convince the most professional of criminals that crime does not pay. Borstal Institutions have been started for males at Borstal and Feltham and for females at Aylesbury. For habitual criminals of the male sex a new prison has been constructed at Camp Hill, in the Isle of Wight. The institution appears to be making good progress.

The salient features of the prison system under modern legislation may be summarised under the following heads :

- (a) The concentration of attention on the juvenile offender under the Borstal system.
- (b) The organisation of a system of aid-on-discharge both for convicts and short-sentence prisoners.
- (c) The provision of "preventive detention" for the habitual criminal, with various incentives to reform.

To readers of this journal the most interesting chapter in the book will probably be that which relates to the criminological inquiry conducted by the late Dr. Goring, and his report entitled "*The English Convict—A Statistical Study*." Sir Evelyn Ruggles-Brise gives a careful analysis of this work, with the conclusions to which Dr. Goring arrives. Without accepting Dr. Goring's views of "the criminal diathesis" in their entirety, everyone agrees that a very large number of the inmates of our prisons are mental defectives, and that consequently their mentality is the important factor in deciding whether they ought to be dealt with as criminals or as defectives. The Mental Deficiency Act, 1913, contains provisions which enable certain classes of defectives to be taken charge of and dealt with more appropriately than in prison, orders made under the Act authorising their detention for such period as may be necessary. The operation of this Act has been sadly hampered by the War and the resulting financial stringency, but there can be little doubt that when every local authority has its special school, under the Elementary Education (Defective and Epileptic Children) Acts, 1899 and 1914, as well as its certified institutions, under the Mental Deficiency Act, and when the Education and Mental Deficiency Committees are properly functioning, the numbers of defectives who find their way to prison will be very considerably diminished. Sir Evelyn

Ruggles-Brise fully recognises the importance of the Mental Deficiency Act in promoting the rational and scientific treatment of the criminal problem. He notes with approval the growing appreciation on the part of magistrates and the public generally of the close and often undiscovered association between crime and mental deficiency. It remains largely for the medical profession to foster and encourage this appreciation. The problems presented by the "moral imbecile," as defined in the Act, are often full of difficulty, and their solution calls for the closest co-operation between the medical officers who in their various capacities have to deal with them. It is only by intimate personal knowledge of the complex mentality of many of these social misfits that accurate diagnosis can be arrived at.

The chapter on vagrancy and ineptitude merits careful attention, especially in view of the inadequacy of short sentences of imprisonment. Persons committed to prison for offences under the Vagrancy Act, or as the result of drunkenness, are the cause of much anxiety to the prison authorities; in neither case can short terms of imprisonment, followed by unrestricted discharge, effect permanent improvement. These offenders only go to swell the ranks of recidivists and habitual criminals. Sir Evelyn Ruggles-Brise states that of the women sent to prison annually nearly two-thirds are committed for drunkenness and prostitution. The figures relating to female committals for drunkenness given on p. 115 are especially appalling. The difficulties are immense, but it is quite time that fresh legislative effort was made to deal with these offenders on a more satisfactory basis.

The statistical table of committals to prison on conviction in the year 1918-19, as compared with 1913-14, shows a reduction in the numbers of such committals amounting to 81 per cent. This reduction is attributable to a great extent to conditions arising out of a state of war—such as the general call upon the manhood of the nation for service under the forces, the endless opportunities for employment for those who in ordinary times would not be eligible for want of the necessary qualifications, and the drastic restrictions on the sale of intoxicating liquor. But the decrease in grave as well as in the less serious forms of crime had been proceeding for some years before the war. Further, the Criminal Justice Administration Act, 1914, which gave new facilities for the payment of fines, came into operation in 1915, and it is interesting to note that whereas before the operation of this Act between 75,000 and 100,000 persons had been committed annually in default, the numbers so committed in 1918-1919 had fallen to about 5,300 only. This low number is probably to be accounted for by the high wages prevalent, thus affording means to pay the fines imposed. It is devoutly to be hoped that these improvements will not prove to be transient.

As regards the population in convict prisons, the great bulk of whom are classed as recidivist, only about 700 are so classified at the present time, as compared with 2,000 at the beginning of the present century; while the supply of the juvenile adults sentenced to penal servitude has almost ceased. These results of modern legislation are very encouraging and satisfactory.

For the future Sir Evelyn Ruggles-Brise seems to suggest the possi-

bility of further development of "the indeterminate sentence" as a punishment for grave crime *in lieu* of penal servitude. A resolution in favour of this principle was, at the last International Congress in Washington, carried unanimously by delegates representing most of the countries of Europe and the civilised world. He also considers that there is further scope for the organisation of probation on large and well-considered national lines, and for the co-ordination of all organised efforts, collective and individual, now existing in the country, with a view to the prevention of crime.

A. H. TREVOR.

The Manner of Man that Kills. By L. VERNON BRIGGS, M.D.
Boston, U.S.A.: Richard G. Badger, 1921. 8vo. Pp. 440.

In this volume Dr. Briggs details the life-histories along with the mental and physical abnormalities of three men—Spencer, Czolgosz and Richeson—the perpetrators of the three most sensational murders of recent years in America. The only one of the three likely to be familiar to British readers is Czolgosz, who shot President McKinley. Dr. Briggs' knowledge of the cases is first hand for he was employed as mental expert at the trials. He was, however, satisfied in his own mind, notwithstanding that they were all three condemned and executed—that they were mentally irresponsible for their actions. He accordingly set himself the long task of a thorough investigation into their life-histories and the elucidation of facts pointing clearly to the morbidity of their mental constitutions. He has succeeded in proving, on apparently indisputable grounds, that Spencer was a defective from birth whose conduct should have demonstrated that he was not a safe individual to live unguided in society. Czolgosz was, from the evidence adduced, a case of simple dementia praecox (*hebephrenia*), who was not medically—probably not legally—responsible for the death of the President. Richeson, a clergyman, was a hysterical who suffered from hallucinations, delusions, amnesic phases, and occasional delirium. He had been nervously affected for years and had been treated by numerous physicians.

The book, which is of great interest to medical jurists, is popularly written with the avowed intention of enlisting public opinion in favour of a change in the laws affecting the supervision of the insane and mentally defective living uncared for and unrecognised in the community, as well as the methods of procedure in criminal trials. The author considers that the medical profession, as a whole, requires a more thorough training in psychiatry than it at present receives. He also believes that, in chronic cases at any rate, the distinction between medical and legal insanity should be abolished. He further urges that in all criminal trials where there exists a *prima facie* suspicion of mental unsoundness the accused should be placed by the court under competent observation and examination for such time as may be necessary, in order to ascertain the true state of his mind.

JOHN MACPHERSON.

The Psychology of Medicine. By T. W. MITCHELL, M.D. London: Methuen & Co., Ltd., 1921. Crown 8vo. Pp. 187. Price 6s.

Dr. Mitchell is peculiarly well fitted for the task he has undertaken in this little volume, as he was first interested in psychotherapy at a time when the subject was scarcely recognised by the medical profession. Most of the pioneer work was done by the Psycho-Medical Society and the Society for Psychical Research in this country, and interest was then mainly directed to hypnotic states and hysterical dissociations along the lines of Janet's researches, first published in *Automatisme Psychologique*, and followed up by the studies of Morton Prince and Boris Sidis. Since these days much progress has been made, and Dr. Mitchell has followed closely the transformations in psychopathology during the last twenty years. The development of his own attitude enables him to give an excellent historical account of his subject, and he here traces the trend of thought from the time of Mesmer to the work of Braid, Charcot, Lieubault, Bernheim and Pierre Janet, up to the more modern conceptions of Freud and Jung. As the book is definitely didactic and elementary in its aims its contents do not call for special comment. It includes an even and well-balanced account of opposing schools of thought, and may be safely recommended as a useful introduction to psychopathology.

H. DEVINE.

Part III.—Epitome of Current Literature.

1. Psychology and Psycho-Pathology.

On Testing the Intelligence of Normal Persons [Ueber Intelligenzprüfungen an Normalen]. (Kraepelin's *Psychol. Arb.*, Bd. vii, Heft 1, 1920.) Lange, Johannes.

The main object of this investigation was to obtain a standard for use in testing the intelligence of defectives and hebephrenics at the Psychiatric Clinic at Munich. The performances of such patients to a test of their intelligence cannot be safely judged unless it is known what result a corresponding test will yield in a normal person of the same stock.

In 1905, at Kraepelin's instigation, a list of 170 questions in use at the Clinic was therefore set as an examination paper to 500 recruits in the Munich garrison. The questions were to be answered in writing, at two sittings with an interval of a week. The first part of the examination comprised 19 questions as to name, age, and simple matters of personal and family history, 28 as to orientation in time and as to simple time concepts, and 22 as to spatial orientation and spatial concepts. The second part comprised 27 very simple arithmetical questions, 64 elementary questions on natural history, religion, history, geography, military service, social life and purely practical matters, and 10 questions involving ethical concepts and judgments. The answers have come into the hands of Lange, who in this interesting paper of 158 pages gives an elaborate analysis of the results.

He found that 31 of the questions made their appeal chiefly to the examinee's judgment; the answers to these were subjected to special study. Other questions, involving more or less subsumption, were taken as affording some measure of the stock of ideas. Lange considers first the numbers of right and wrong answers to the questions taken severally, and on these he makes many observations too miscellaneous to be fairly sampled. Let us note, however, that the request to name towns in Upper Bavaria brought replies averaging only 2·5 towns, that 144 men were far out in their estimates of the length of the middle finger, and that 100 could not give the length of a kilometre. These three results, Lange says, show three kinds of wide-spread defect: a miserable narrowness of the geographical horizon, an inability to apply the simplest natural instrumental aids, and an absence of concepts that we might have supposed to be indispensable. Only 195 men could give approximately the date of the founding of the German Empire; 190 did not know who Bismarck was. As for questions on social life, though 327 men gave passable answers to the question what police are for, far below 50 per cent. could indicate the kinds and purposes of courts of law, or the purposes of taxation. For ethical concepts and judgments the results were somewhat better, but many men failed where a thing was not quite self-evident; thus, only 173 could give any ethical reason why it would be wrong for a man to set fire to his own house. But the questions that yielded the worst results were questions of difference, and questions appealing directly to the judgment; none of these, except the question why houses are built higher in towns than in the country, brought more than 40 per cent. of right answers. Only 48 men could give an appropriate answer to the only question involving definition of a concept—the question what faithfulness is.

The investigation showed that most of the men could be trusted only for such knowledge as touched their most immediate personal conditions of life and was indispensable for immediate practical purposes. Anything beyond this is in the possession of a percentage that is the smaller the less necessary such knowledge is for protecting the individual against daily risks. So we find lack of interest, laziness of thought, want of adaptation to the question, inability to enter into any question where daily need does not compel. The poorness of the results is due, not to sheer inability, but to absence of intellectual needs. We can now see what those questions are that we may expect to be answered correctly by a normal man. The questions that brought over 90 per cent. of correct answers numbered 71, of which over 20 may be ignored as relating merely to personal particulars of the simplest sort; of the other 40 odd, there is hardly one that was answered correctly by everybody. There is no single question where failure to answer indicates weak-mindedness. We must judge not by details but by the total performance.

Yet we must not judge solely by total marks. Identical totals may be produced in different ways. One man may score on the information he possesses, another on his judgment. Men equal in information may differ as regards judgment, and *vice versa*. Lange plots a curve, representing information results and judgment results by ordinates and

abscissæ respectively. For each value of total marks for information he plots the corresponding judgment average. Similarly for each value of total marks for judgment he plots the corresponding information average, and so obtains a second curve. The curves show that there is some amount of correspondence between the information results and the judgment results. But how much correspondence is there? This can be expressed as a coefficient of correlation, according to a mathematical formula that has been given by Spearman. The coefficient for the correlation of information with judgment is thus found to be 0·71. (If the correspondence were exact the coefficient would be 1.) In the same way Lange obtains coefficients for correlation of information with total performance, and of judgment with total performance. These work out at 0·94 and 0·83 respectively. The figure 0·94 has little importance, and is very much what we should expect, seeing that the information questions composed the great bulk of the paper. But the figure 0·83 is very noteworthy; it is remarkably high, if we consider how few judgment questions there were; it shows in a striking manner the great value of such questions as a test of intelligence. In any future investigation of this kind the questions that appeal to the judgment should form a greater proportion of the whole; and, as it is important that we should be able to disentangle the judgment results from the information results, the judgment questions should necessitate as little information as possible. If there are sufficient well-designed judgment questions, it is not necessary to put very many information questions. We gather that where we find a fair amount of judgment there we must expect to find also a sufficiency of information for that person's conditions of life.

Lange makes other criticisms of this list of questions, and he adds a proposed list of his own. This comprises 30 questions on school knowledge; 20 questions on practical matters (*e.g.*, price of bread), economics (*e.g.*, health insurance cards), politics (*e.g.*, the process of legislation, the aims of the Social Democrats), and the administration of justice; 7 questions on ethical ideas; 8 definitions of concepts (plough, uncle, courage, etc.); from a list of 21 words group together those of similar meaning; name as many forest trees (beasts of prey, metals) as you can; what, collectively, are hammer, anvil, saw, tongs and drill? (2 questions of this type); name all the red things, all the transparent, all the elastic things you know; name all the properties of sugar, and of water; name all the parts of a tree, and of the human body; arrange, in a rational order of time, "doctor, football match, cure, bandage, broken leg, convalescence, fall" (4 such puzzles); of 10 given proverbs, group together those of somewhat similar meaning; mention the differences between ox and horse, glass and wood, etc. (7 pairs); arrange the following jumbled words so as to form a sentence (2 examples); in the following passage mark the places where the words do not make sense; supply the missing words (nouns and verbs) in the following narrative; in the gaps in a second narrative insert appropriate connecting words (prepositions and conjunctions).

With the help of tables and curves, Lange considers the results of the present investigation in various other ways. Among other things he considers the results in relation to the different kinds of schooling

that the 500 men had enjoyed, the different kinds of previous employment in civil life, and the inevitable processes of selection that had been at work to produce this batch of 500 men—processes by which men more highly endowed had been reserved for higher walks of military life, and by which, on the other hand, obvious imbeciles had been excluded. He considers, in various lights, the possibility that some of these 500 should be regarded as weak-minded. He gives some brief critical remarks on some conclusions that would be reached by applying to this material certain supposed criteria of weak-mindedness.

SYDNEY J. COLE.

On the Biological Basis of Sexual Repression and its Sociological Significance. (*Brit. Journ. of Psychol., Med. Sec.*, July, 1921.)
Flugel, J. C.

Psycho-analysis has shown that repression is due to intraphysical conflict; the exact nature, however, of the forces which produce the repression and the circumstances under which they act have hitherto not been adequately studied. Freud speaks of the ego-trends as constituting a source of instinctive energy which frequently acts in opposition to the sexual trends, but light has not been thrown upon them to anything like the same extent as upon the libido. By the study of repression from the biological point of view a deeper insight into its nature can be determined.

The biological factor, which is the thesis of this paper, consists "in the existence of a necessary biological antagonism between the full development of the individual and the exercise of his procreative powers—between *individualism* and *genesis*, to use the terms employed by Herbert Spencer—an antagonism of such a kind that (other things being equal) the energies devoted to the life activities of the individual vary inversely with the energy devoted to the production of new individuals. The relative amount of energy devoted to the two ends is determined (within the limits imposed by individual modifiability and racial variability) by the action of *natural selection*, there being some influences which favour the devotion of energy principally to purposes of *individuation*, while other influences favour the devotion of energy principally to purposes of propagation; so that there is brought about (within the individual and within the race) a struggle between the two lines of development corresponding to the two conflicting influences of the environment, this struggle manifesting itself within the mind as a conflict between sexual tendencies on the one hand and the self-preserving and self-regarding tendencies on the other; a conflict as the result of which there takes place the general sexual inhibition with which we are here concerned." The true meaning of the antagonism between *individuation* and *genesis* only becomes manifest when we bear in mind the tremendous influence of the struggle for existence, as revealed by Malthus in its operation on the human race and by Darwin in its application to all forms of life. On the psychological side the sexual (and parental) instincts correspond to *genesis*, and the sublimation of these to *individuation*. At present the human reproductive tendencies and capacities are greater than is biologically advantageous.

Malthus' remedy for over-population, with its attendant evils of poverty, war, disease and premature death, is the postponement of all sexual relations till relatively late in life. This requires a very extreme degree of sexual inhibition; under the Neo-Malthusian practices of contraception the sacrifice of sexual satisfaction is far less.

The effects of the recognition and application of these principles are traced. The writer considers that "in birth control we possess a weapon for rendering the individual human being longer lived, more amply provided for with the necessities of life, and less exposed to the rigors of the struggle for existence—in other words, for attaining those ends which the majority of social and political reformers have principally in view." Rational insight and conscious control will be substituted for methods of blind prohibition and taboo. The inhibitions due to over-reproduction will be entirely removed, but the need for sublimation will remain and will continue to necessitate a considerable degree of sexual inhibition.

This enlightening article deals in detail with the many sides of the problem, only the fringe of which can be touched upon in this epitome.

C. W. FORSYTH.

2. Neurology.

The Hereditary Transmission of Huntington's Chorea [Chorea degenerativa]. (Zeitschr. f. d. ges. Neur. u. Psychiat., Bd. lxvi, April, 1921.) Harms zum Spreckel, H.

The author gives a genealogical tree of certain agricultural families in the Erzgebirge (Saxony), showing the incidence of Huntington's chorea in four generations of descendants of a woman (*A*), who was born in 1785 and who herself at the age of 43 became affected with the disease. The taint seems to have originated with her, for though there was some question whether her mother may not have had the disease, the evidence that the author has unearthed leads him to reject a diagnosis of chorea in that instance, and none of *A*'s 4 grandparents was affected. Besides 2 children who died young, *A* had 2 sons (*B*, *C*) and a daughter (*D*). *C* and *D* had chorea; *B* escaped the disease, but died at the age of 37, i.e., before expiry of the age-period of liability to it. Seven of *A*'s 20 grandchildren, at least 10 of her 43 great-grandchildren, and, up to the present, 2 of her 51 great-great-grandchildren, have become choreic. They are: 1 of *B*'s 5 sons (but none of this son's descendants); 3 of *C*'s 10 children, and 2 of his 9 grandchildren; and 3 of *D*'s 5 children, 8 of her 25 grandchildren, and 2 of her 25 great-grandchildren. Ten of the cases have occurred in men, 12 in women. In ten instances the author has been able to confirm the diagnosis by personal study of the patient. He adds that among *A*'s great-grandchildren, besides the ten here reckoned as affected, there are 3 others in whom slight choreic movements have been noticed by relatives, though he himself in his personal examinations has hitherto failed to detect them. In twelve cases the disease has been inherited from the father, in 9 from the mother. Except in the solitary instance of *B*'s son, the transmission has always been direct, without

any skipping of a link, i.e., if a member of the family has escaped the disease, none of that member's descendants has become affected; the single apparent exception to this rule—that afforded by *B*'s son—seems sufficiently explained by the fact of *B*'s dying from other causes before expiry of the critical period of life. Further, it may be noted that the three doubtful cases referred to with slight choreic movements, in which the diagnosis is not yet confirmed, are all in offspring of affected children of *C* and *D*.

The onset of the disease is commonly insidious. It occurs mostly in robust persons who have married and had families, and it begins at ages varying from 26 to 51 years. The author does not find any evident raising or lowering of the average age of onset in successive generations, such as some writers have alleged. In particular instances the illness has been ascribed by members of the family to various causes, but the only causal factor whose influence is at all clear is the hereditary factor.

SYDNEY J. COLE.

Global Aphasia and Bilateral Apraxia due to an Endothelioma compressing the Gyrus Supramarginalis. (Arch. of Neur. and Psychiat., June, 1921.) Bremer, F.

Two cases are described where a knowledge of Marie and Foix's syndrome of the suprain marginalis—slight paresis of the right arm with marked sensory disturbances, global aphasia and ideo-motor apraxia—enabled the localisation of the tumours to be correctly made. In each case the symptoms disappeared after the removal of the tumour. Pressure on the corpus callosum was impossible as the tumours were so small. A lesion of the left gyrus supramarginalis was found responsible for a true bilateral apraxia in thirteen cases out of forty-one (von Monokow).

In two other cases a small gliomatous cyst of the frontal region produced the type of aphasia characterised by an intensity of dysarthria contrasting with a relative conservation of the understanding. This represents the syndrome anarthrique of Marie and Foix, which they showed to be produced by a lesion in the posterior part of the second frontal convolution and the adjacent part of the ascending gyrus.

C. W. FORSYTH.

Reflex Epilepsy [Über Reflexepilepsie]. (Ztschr. f. d. ges. Neur. u. Psychiat., Bd. lxiv, February, 1921.) Rosenhain, E.

In 1850 Brown-Séquard divided a guinea-pig's sciatic nerve, and after some weeks observed the development of an epileptic condition, and of an epileptogenous zone on the injured side. The attacks occurred sometimes spontaneously, but they occurred regularly when the epileptogenous zone was stimulated or touched. From the spasms of a guinea-pig to human epilepsy is a big jump; nevertheless, a number of cases of convulsion in man were described as analogous to what Brown-Séquard had observed. For example, in 1871 Westphal reported the case of a girl, æt. 17, in whom pressure on the left supraorbital nerve regularly produced a tonic spasm, which ended with vigorous weeping and howling.

The conception of reflex epilepsy requires the existence of a kind of epileptic condition, distinguished from other forms of epilepsy by the circumstance that, in consequence of a local disease somewhere outside the brain, convulsive attacks are released, on a reflex path, by stimulation of a centripetal nerve. In criticism Rosenhain sets forth the following considerations : (1) The fits do not follow at once upon the incidence of the local disease ; there is an interval, sometimes of years. (2) An aura in the region of the affected nerve has been supposed to be further evidence of the reflex nature of the disturbance ; but the occurrence of such an aura may be a mere coincidence ; or it may be due, in cases of Jacksonian epilepsy, to a chance affection of a spot of cortex corresponding to the injured limb ; or the aura may have been merely referred to a *locus minoris resistentiae* of the periphery of the body ; or, if the aura were dependent, in accordance with the notion of reflex epilepsy, on a morbid functioning of the injured nerve, it would be fair to assume that, wherever an aura is located, there there is to be found the seat of production of a fit—which is absurd. (3) It has been said that in some cases, after treatment of the local affection, or after extirpation of the epileptogenous zone, the epilepsy has been cured ; but this is no proof of its reflex nature, for the cure may have been due to removal of a toxic source, or to amelioration of a neuritis ascending to the subarachnoid space. (4) If, by suitable stimulation of a centripetal nerve, an epileptic fit were regularly induced, the reflex nature of the condition would be clear ; but in many of the cases the fits were induced psychically ; in many the fits were not epileptic at all, but hysterical ; there is no record of any exact observations on the delimitation of the epileptogenous zone, the strength of the stimuli employed, or the time interval between the application of the stimulus and the release of the fit ; and, further, it is necessary to exclude many cases of local affection of the cortex in which, in consequence of a focal brain lesion, a local stimulation of the corresponding limb produces convulsions. (5) As the conception requires that the malady should be a veritable epilepsy, the possibility arises that not merely major fits but various epileptic equivalents might be evoked in the same way ; in this connection equivalents have never been considered. (6) How is it that among the entire epileptic material of the Breslau clinic during the last ten years there has not been a single case, and that at the Würzburg clinic no case has ever been known ? If a reflex epilepsy were possible, the war would have yielded many cases.

The conception of reflex epilepsy arose in an age when epilepsy was very imperfectly distinguished from other affections, but it still drags out a shadowy existence in the literature. Rosenhain's paper may help to lay its ghost.

SYDNEY J. COLE.

3. Clinical Psychiatry.

The Study of the Trend in a Group of Dementia Praecox Cases. (State Hosp. Quart., May, 1921.) Wright, W. W.

Seven cases showing two trends are discussed : four in which the incest phantasy is evident, and three where the union with the father has a more symbolic representation in a setting of religious exaltation,

the father being replaced by God, the Pope, priest, president, king or some wealthy or renowned person. In all these cases a conflict or wish is evident, and the solution is a wish realisation, the variation in their phantasies depending upon the individual need. In some the phantasy is openly crude, in others subterfuges and substitutions are employed to make the situation compatible with the individual's moral concepts.

The mental mechanisms in these two groups are similar. In the past we have been led to believe that we were dealing with two distinct groups, the one said to represent the infantile, the other the adult trend of thought. When the first was present the prognosis was said to be poor, when the latter it was said to be good, and the case one of manic-depressive type. The designations of "infantile" and "adult" as applied to trends are here shown to be misleading and of no prognostic value, and that instead of two groups of cases there is in reality but one.

C. W. FORSYTH.

The Significance of Certain Symptoms in the Prognosis of Dementia Praecox. (State Hosp. Quart., May, 1921.) Williams, R. R., and Potter, H. W.

From this study of 200 cases of dementia praecox the following conclusions may be drawn: (1) The shut-in type of personality may be regarded as one of the points for a favourable prognosis. (2) The presence of infantile sexual ideas is of grave significance. (3) The outlook is poor where hallucinations are present; if, however, they are of the visual type, the outcome may be regarded as more favourable. (4) The presence of a reactive mood change as shown by perplexity, anxiety, apprehension, depression or elation would portend a more favourable prognosis; conversely, an acceptance of the situation with an attitude of apathy and indifference is of serious prognostic inference. (5) A consistent and adequate emotional response may point to a favourable outcome; when a proper affective tone is lacking, the odds are greatly in favour of a protracted chronic course. (6) Regression and projection are the essential mechanisms of dementia praecox. Regression, if the sole mechanism, usually points to a deterioration with little hope of adjustment. If in combination with any of the accessory mechanisms the prognosis becomes less grave, when combined with projection it is not materially helped. Where projection is the sole mechanism the outlook is more favourable. (7) If the accessory mechanisms of wish fulfillment, repression, compensation or atonement, etc., are active, the prognosis is improved.

C. W. FORSYTH.

4. Treatment of Insanity.

Occupational Therapy at Kankakee, Illinois, State Hospital. (The State Hosp. Quart., August, 1921.) Sutton, Bess E.

This is an account by the chief educational therapist of eighteen months' work. The purpose of this department is to hasten recovery, lessen deterioration, improve the deteriorated, and to make the patient, generally, a happier and more useful member of society, whether outside or inside the hospital. Economic advantage is incidental. Efforts are

made, according to individual needs, to promote initiative, interests, contact with reality, self-expression and cheerfulness; to increase concentration, control, self-respect, sociability, to direct energy; to substitute good habits for bad; to diminish self-consciousness, and to give definite sensory and motor training. The means employed include training in personal habits, purposeful constructive work of graduated difficulty, games and amusements likewise graduated, walks, picnics, dancing, music, physical drill and gymnastics.

The work supplements that of the industrial departments to which some of the unrecovered cases from class A, who are taught, e.g., carpet-weaving and furniture making, etc., are drafted.

The patients are classified, and an interesting enterprise is the adaptation of a disused building as an attractive ward, with dormitory and day room, in which intensive re-educational work is done with twenty at a time of the most deteriorated, untidy women in the institution. Another class is for 125 disturbed patients. "At first they seemed impossible," but rapidly improved. Music and exercise were important here.

Class-rooms are being established in the hydrotherapy department, so that reduction of psycho-motor activity may be followed by directed employment.

Twelve hundred men and women patients now attend classes (in addition to those in industrial departments). The personnel comprises a chief and five assistant trained occupational therapists, a physical director, fourteen charge attendants. They attend weekly lectures. The author looks back on slow, steady progress in spite of frequent discouragements.

MARJORIE E. FRANKLIN.

5. Pathology.

Spirochætes, Serum and Spinal Fluid: Studies Relating to the Pathogenesis of General Paralysis [Spirochäten, Serum und Liquor: Studien zur Pathogenese der Paralyse]. (Zeitschr. f. d. ges. Neur. u. Psychiat., Bd. lxiv, February, 1921.) Scharnke and Rüete.

The writers report observations of the action of serum and spinal fluid upon spirochætes obtained direct from cases of primary or secondary syphilis. An actual agglutination can hardly be said to occur, but in many instances the motility of the spirochætes is abolished or impaired. Such an immobilising action is possessed in a very marked degree by fresh non-inactivated serum, even of healthy persons. If the serum is inactivated by heat, or even if it is merely allowed to stand for some hours, it loses this power. Syphilitic serum, however, whether of positive or of negative Wassermann reaction, retains this power in some degree even when it is inactivated or stale. Even in cases where under treatment the Wassermann reaction has become negative, the immobilising power of the serum remains.

The conditions for the occurrence and persistence of a similar immobilising power in the spinal fluid are less clear. Spinal fluids are met with that, though fresh and non-inactivated, are inert; but

usually the fresh spinal fluid of a healthy person has an immobilising action, though this is slower than that of fresh serum. Spinal fluid of negative Wassermann reaction from healthy persons, if it is inactivated or stale, is inert. Spinal fluid of positive Wassermann reaction from a case of secondary syphilis with severe headache, even when left to stand for thirty-two hours, had an instant immobilising effect. The immobilisation is especially rapid when the spinal fluid, even if of negative Wassermann reaction and inactivated, is that of the patient from whom the spirochaetes have been obtained. The action of spinal fluid from cases of general paralysis is usually very rapid and complete. A slower action was observed in two paralytic fluids of negative Wassermann reaction. The immobilising power of paralytic fluid is very little reduced by inactivation. In many paralytic cases the immobilising action of the spinal fluid is much more rapid and complete than that of the serum. A complete absence of immobilising power in the spinal fluid almost certainly excludes a diagnosis of paralysis.

As there are so many complicating factors and sources of fallacy, it is desirable that these observations should be checked by other workers; but the results so far obtained have confirmed Scharnke and Ruete in the opinion, formed already upon other grounds, that in general paralysis the brain is left to fight the spirochaetes single-handed with such antitoxins as it can itself produce, unassisted by supplies from other parts of the body, and that treatment should consist in stimulating the production of antitoxins in the body generally by oft-repeated introduction of small doses of syphilitic virus.

SYDNEY J. COLE.

The Pathogenesis of Epilepsy from the Historical Standpoint, with a Report of an Organic Case. (Arch. of Neur. and Psychiat., June, 1921.) Kasak, U.

A short account is given of the various theories which have been held to account for epilepsy. The only reference, however, to Pierce Clark's monumental work is the following: "It is significant that these mental factors have been recently re-emphasised."

It is pointed out that there are no anatomical changes in the central nervous system pathognomonic of epilepsy. Brain tumours form an interesting group of organic conditions causing epilepsy. A case is described, apparently one of idiopathic epilepsy, which *post-mortem* proved to be a psammoma of the left frontal lobe, with hydrocephalus. Excellent macroscopic and microscopic photographs are reproduced.

Psychic disturbances are present in two-thirds of the patients who suffer from cerebral tumour. In tumours of the bulb symptoms are present in one-fourth of the cases, of the cerebellum in one-third, of the hypophysis in two-thirds; in all cases of the corpus callosum without exception, and in most cases of frontal lobe tumours. Among other disturbances fits of unconsciousness with convulsions are frequent in cerebral tumours apart from cortical epilepsy. In rare cases general epileptiform convulsions may for some time be the only symptom. It may be impossible to distinguish them from idiopathic epilepsy until headache, double neuritis, or other signs appear. Other mental

disturbances of frontal lobe tumours are "indifference, unpunctuality, mental enfeeblement, loss of memory and power of attention, change in disposition, with more or less marked irritability or taciturnity, or obstinacy or jocularity, etc., rambling speech, lack of realisation of illness, change in general conduct of life, habits of untidiness." Kraepelin considers that these disturbances are due to destruction of brain substance, to pressure impairing cerebral circulation, and possibly to traction and displacement of the tissue, and in some cases to absorption of decomposition products.

C. W. FORSYTH.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY MEETING of the Association was held in the rooms of the Medical Society of London, 11, Chandos Street, London, on Thursday, February 23rd, 1922, at 2.45 p.m., Dr. C. Hubert Bond, O.B.E., President, occupying the Chair. The Council and various Committees met earlier in the day.

The minutes of the last meeting, having already appeared in the Journal, were accepted as read, and duly signed.

MATTERS ARISING OUT OF THE COUNCIL MEETING.

THE PRESIDENT said the Council had had a long meeting, but there was not much business arising out of it to report to this general meeting. It was a great regret to learn of the illness of Sir Maurice Craig, who it had been hoped would have been present at the meeting. Sir Maurice had been, and was still, seriously ill, but it was satisfactory to know that his condition was no longer causing anxiety. He suggested that if the members would sanction a letter of sympathy being sent in their name by the Secretary, it would be some gratification to the patient.

This was unanimously agreed to.

THE PRESIDENT said that at the Association's previous general meeting the question of the cost of printing the Journal arose, and the senior Editor (Colonel Lord), Dr. Edwards, and the Hon. Treasurer (Dr. Chambers), were asked to look into the matter and report. They had delivered their report to the Council, and he would ask Colonel Lord to give a condensed purport of it now. It would be seen that the result of the inquiries was satisfactory.

Colonel LORD said that, following the instructions given at the Annual Meeting, the small Committee had collaborated on several occasions, and finally a form of tender was sent to seven printing firms of repute, used to this style of work, including the present printers of the Journal. The form of tender had not proved an easy matter. There was much work in connection with the production and issue of the Journal which it was impossible to tender for, and there was a great variation in its contents from time to time. Estimates for the reproduction of plates had to be obtained separately on each occasion. And again in the printing of statistics, some were easy to set up, others were difficult and complicated. There was also the business connected with the advertisements, which was carried out by the printers, which could not be tendered for; also the exchange of journals, which involved a good deal of correspondence. The Register of names and addresses of members had to be kept up to date by the printers, and changes in addresses recorded, and the regular despatch of the Journals could not be put out to tender. Therefore the tender had finally to be restricted to the bare printing of a typical issue of the Journal, and samples of pages and types were sent with the form of tender. These forms had to be returned by February 15th, and it was satisfactory to note that the present printers gave the lowest tender, and members

could now feel assured that the Journal was being printed on the most economical terms which could be obtained.

The PRESIDENT said the thanks of members were due to the Committee, who had gone so carefully into the matter, and had relieved the anxiety felt about it.

Dr. BOWER asked whether the price now quoted by Messrs. Adlard was less than that which they had been charging for printing the Journal? Had the action taken by this Committee secured more favourable terms?

Dr. EDWARDS said that the Auditors reported a charge of nearly £100 more than the present tender.

Dr. BOWER said that showed that benefit had resulted from the inquiry.

The PRESIDENT said it should be remembered that trade prices had been coming down for some time, and were still declining.

Colonel LORD said it was clear that the Journal was being printed by the firm who would charge the Association the lowest, which was the object of the inquiry. The cost of printing had gone down since the matter was raised, but the tenders obtained were all based on an imaginary journal at present prices, so that comparison with former charges was impossible. The cost of printing would, however, now be checked from time to time.

The PRESIDENT said that, also arising out of the meeting of the Council, members would remember that a sub-committee had been appointed by the Council to watch, and with power to act, the position which had arisen in the relationship of this Association to the General Nursing Council. That sub-committee had met, and had forwarded a letter to the Minister of Health on the matter, and the Council had re-appointed the sub-committee, with the same duty as heretofore. As the position was still obscure, the Council thought it would be wise to pause for a short time and note the action which would be taken by the General Nursing Council when it re-assembled under its new chairman.

A further item was the resignation which the Council were sorry to receive from Dr. W. R. Dawson as one of the co-editors of the Journal. And though, under the circumstances, the Council had no option but to accept it, it was a pleasure to know that the reason was one on which they could offer their hearty congratulations to Dr. Dawson, as he had been appointed to the important position of Chief Medical Officer in the Ministry of Home Affairs, Northern Ireland. It was a satisfaction to know that the holder of that post would by his previous identification with the specialty always be interested in the progress of psychological medicine.

ELECTION OF CANDIDATES FOR MEMBERSHIP.

The following were duly elected members of the Association.

WOOTTON, L. H., M.C., B.Sc., M.B., B.S., M.R.C.S., L.R.C.P.Lond., Second Assistant Medical Officer, Bexley Mental Hospital, Bexley, Kent.

Proposed by Drs. G. Clarke, J. R. Lord, and John Brander.

WEBSTER, WILLIAM LECKIE, Capt. (Bt.-Major), R.A.M.C., M.B., Ch.B.Edin., 18, Minto Street, Edinburgh. c/o Messrs. Holt & Co., 3, Whitehall Place, London, S.W. 1.

Proposed by Drs. G. M. Robertson, J. G. Porter-Phillips, and Thomas Beaton.

WILSON, AMBROSE CYRIL, M.R.C.S., L.R.C.P.Lond., Physician, London Neurological Clinic, Ministry of Pensions. Union Club, Trafalgar Square, London, S.W.

Proposed by Drs. G. W. B. James, A. F. Grindle, and R. Worth.

CASSON, ELIZABETH, M.B., Ch.B. Bristol, Assistant Medical Officer, Holloway Sanatorium, Virginia Water, Surrey.

Proposed by Drs. W. D. Moore, R. Worth, and C. Rutherford.

DUNSCOMBE, NICHOLAS DUNSCOMBE, M.A., M.B., B.Ch.Camb., L.M.S.S.A. Lond., Assistant Medical Officer, Royal Earlswood Institution, Redhill.

Proposed by Drs. Charles Caldecott, R. Worth, and G. Warwick Smith.

SEGERDAL, A. McM. W., M.B., B.Ch., D.P.H.Belt., Assistant Medical Officer, Winwick Asylum, Warrington.

Proposed by Drs. F. M. Rodgers, G. Warwick Smith, and R. Worth.

DEARDEN, HAROLD, B.A.Camb., M.R.C.S., L.R.C.P.Lond., 45, Curzon Street, W.

Proposed by Drs. J. C. Woods, J. G. Porter-Phillips, and Thomas Beaton.

GUPPY, FRANCIS HENRY, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Bexley Mental Hospital, Bexley, Kent.

Proposed by Drs. G. Clarke, J. R. Lord, and John Brander.

JARRETT, R. F., L.M.S.S.A.Lond., Assistant Medical Officer, Springfield Mental Hospital, Tooting, S.W. 17.

Proposed by Drs. R. Worth, G. Warwick Smith, and E. H. Beresford.

The PRESIDENT, in asking for names of members who would be present at the Dinner in the evening, said that these Dinners fell practically into abeyance during the war, but he was now most anxious to see them revived, as they enabled members to renew friendships and to compare notes in the course of informal conversation. Cost had been a considerable factor in the past, but as they would see, a very low quotation had been obtained, and he hoped as many as possible would meet at dinner.

THE ALBUM OF PAST PRESIDENTS.

The PRESIDENT reminded members that the album of photographs of Past Presidents of the Association was on the table; it contained the portrait of every Past President down to Dr. Charles Mercier. He was sure it was the desire of members that this should be kept up to date. Dr. Outterson Wood, whom all were delighted to see present, had most kindly stated that as this album was full, he would defray the cost of a new one, and he, the President, had undertaken to procure the photographs of Presidents since that date. In the name of the members, he had tendered their warm thanks to Dr. Outterson Wood for his promised gift.

INTERNATIONAL CONGRESS OF MENTAL HYGIENE.

The PRESIDENT said the General Secretary and he had received a communication from Paris inviting members to a double event in Paris on the last two days in May and the first four days in June, the events being to celebrate the Bayle Centenary of the identification of general paralysis, and to attend the First International Congress of Mental Hygiene. Announcements would appear in the next Journal regarding each of these projects.

PAPER.

"The Use of Analysis in Diagnosis." By Dr. T. S. GOOD, Ashurst Hospital, Oxford.

The PRESIDENT said the Association was much indebted to Dr. Good for having put this highly interesting paper together at a time when he was exceedingly busy, and for coming from Oxford to read it. Dr. Good was discussing both the cases set out in the paper with him, the speaker, when he was recently at Oxford, and the author yielded to his persuasion to give the Association the benefit of hearing about them. From time to time one met with advocates of what some liked to term the two schools, the materialistic and the psychogenetic, and to speak of them as if they were opposed to each other. One thing the present paper did was to harmonise these two aspects, and it emphasised that there should not be a one-sided way of looking at cases. These two cases had been adequately examined physically, yet by the means employed the physical condition was elucidated, and it did not become so until the way had been pointed out by psychotherapy. Hence this contribution could be looked upon as a shaking of hands of those two lines of investigation, which many so unfortunately regarded as opposed to each other.

Dr. F. H. EDWARDS said the great point in the paper seemed to him to be the great rapidity with which Dr. Good had been able to reach his diagnosis. The method pursued was not the one usually seen practised in psycho-analysis, in which the patient had to submit himself to a process of analysis extending up to even three months. It was the form known as the open method, one of which he himself had had very little opportunity of seeing the results. He had had many conversations with those who had been treating war neuroses, and he had been astonished at the statements made by certain experts, namely, that—particularly in the treatment of such conditions as mutism—recovery had invariably taken place within, at the outside, one hour from the commencement of the treatment.

It was therefore obvious that there were two schools, or methods, of practising psycho-analysis, yet one would think from the terminology that it was one method. He felt convinced that psycho-analysis in the hands of Dr. Good would be, from his own standpoint, much more satisfactory than the methods employed by other members of the profession.

Dr. C. W. BARR asked how soon after the receipt of their injury the patients mentioned had come under the treatment. As a rule, it was not so easy to bring about recovery from the amnesias when there was a somewhat long interval between the causal accident and the commencement of the treatment.

Dr. BEDFORD PIERCE asked if the patients dealt with in the paper had been in any of the recognised war psychopathic hospitals, as it seemed somewhat singular that their physical defect had not been discovered before.

Dr. A. W. B. LIVESAY said that, from the surgical point of view, it seemed a lightning diagnosis, and he asked whether there was any X-ray evidence of the injury. The operation of decompression seemed to have been a severe one on the rather slight evidence available, and such a long time after the receipt of the injury. He hoped the reply would give more information on that point.

The PRESIDENT said the brevity of the discussion must not be taken as the criterion of the interest the paper had aroused; there had been some important questions asked. He looked forward with great keenness to the day when Dr. Good would be at work again and the institution after its return to its normal function; then we should have a chance to see the results of Dr. Good's very great experience during the war brought to bear upon cases of mental disorder of the type ordinarily admitted to mental hospitals.

Dr. GOOD, in reply, said he was aware the cases he dealt with in his paper were regarded as rather startling. He then discussed the teachings of Freud, Adler and Jung. Continuing, he had been asked what form of analysis he used. Surgeon-Captain Livesay said he, the speaker, had made a lightning diagnosis, but he had been three weeks at the man, giving up to him two hours at a time. In tackling the amnesias, it did not take long once a move was made. Dr. Edwards referred to it as the open method, but it was used by both Freud and Jung. Jung admitted that the cause might be one which did not reach back as far as childhood. The Harvard Lectures and recently published writings of Freud showed that he had altered his ideas as to war neuroses, for he said the self-preservation instinct might account for a good deal. The cases he, the speaker, had narrated did not go back to childhood, therefore they would not be so difficult to get at. It was better, in either bodily or mental diseases, to try everybody's methods than sticking to one school or set method to the exclusion of others. It was far preferable to fighting among themselves. He could remember hypnotism being looked upon as an awfully weird matter, and not so very long ago a commission was appointed by the British Medical Association to report whether hypnotism and suggestion were of the slightest use in medicine. Hypnosis was not a treatment, but a condition, the reason it was assumed being that it strongly resembled sleep. Another contest had raged on whether treatment by psycho-analysis was suggestion. An integral part of our mental make-up was that we were suggestible, but he did not think we were conscious of suggestion. He could not answer Dr. Bedford Pierce's question, but he invariably put down on the case-sheet everything on the physical side. The facial paralysis might have been a slight Bell's palsy. The diagnosis of the injury was made before any operation was undertaken, and at the operation the surgeon found the condition present. One of the men had not had any more epileptiform convulsions since; the other now understood his condition and certification had been avoided. In answer to a further question, one case was treated four years after the original accident, and the other, he believed, was three years after.

NORTHERN AND MIDLAND DIVISION.

THE AUTUMN MEETING of the Northern and Midland Division was held, on the invitation of Dr. J. R. Gilmour, at the West Riding Asylum, Scalebor Park, Burley-in-Wharfedale, on Thursday, October 27th, at 2.30 p.m.

Dr. Gilmour presided and 20 members were present.

The Minutes of the last meeting were read and confirmed.

The following candidate for ordinary membership was balloted for and duly declared elected: Ernest William Jones, M.D., M.R.C.S., L.R.C.P.Lond., the Manor House, Aldridge, Walsall, Staffs. (Proposed by Drs. F. P. Selwyn Thomas, W. F. Menzies, and R. G. M. Ladell.)

On the motion of Dr. EADES, seconded by Dr. MACKENZIE, the following members were re-elected to the Divisional Committee: Drs. B. Pierce, E. G. Mould and T. Stewart Adair.

Dr. C. WILFRED Vining then read a paper on "The Relationship of the 'Bilious Attack' and certain other Morbid Phenomena to the Epileptic State."

Having briefly reviewed the relationship of migraine and epilepsy Dr. Vining gave the results of his observations on a series of 240 cases of epilepsy. In approximately one-third of these series there was a well-defined history of the "bilious attack." This "bilious attack" associated with epilepsy had certain characteristics. The attack nearly always commenced in the morning, the patient waking with a prostrating headache, accompanied by extreme nausea and distaste for food, lasting for a period of hours and frequently terminating in vomiting, which appears to bring the attack to a close. The headache is generally frontal and rarely hemicranial in character, visual phenomena being rare. In 88 cases out of the 240 these "bilious attacks" were well defined. They had preceded the epileptic period and had continued as an associated phenomenon in 48 cases; had preceded, ceased before or on the outset of epilepsy in 25 cases; and in the remaining cases had been an associated phenomenon throughout. In 73 cases the attacks commenced before 13 years of age, in many cases from infancy. Females were more frequently affected, 66 out of 156 females against 22 out of 84 males. It happened that the bilious attack had little to do with the digestive system, and was probably a "nerve storm" with the same aetiological foundation as epilepsy. An epileptic heredity was present in 32 cases, a "bilious attack" heredity in 30 cases. Dr. Vining then gave statistics concerning "faints" and nocturnal enuresis, which was present in his series in 43 cases apart from the incontinence due to the epileptic fit. A history of somnambulism was present in 12 cases and in 9 preceded the fits by some years. These evidences emphasised the possibility of the "bilious attack" and other phenomena occurring in the child being an expression of a potentially epileptic nervous system, and other recognition with active and prolonged treatment may prevent the development of the convulsive state.

Dr. REES THOMAS asked how many of the cases were associated with organic changes; Dr. PIERCE asked about the effect of a purin-free diet in the cases; and Dr. EURICH emphasised the fact that true migraine is very rarely associated with epilepsy. Dr. Vining replied that all the cases were of the idiopathic type and that diet had apparently little effect.

Dr. EURICH then read his paper on "The Treatment of the Criminal." He pointed out that crime might be looked at from the historical, ethnological and even anatomical standpoints. This opened up a review of Lombroso's work, but Dr. Eurich pointed out that the conception of crime varied with the centuries, and that it would be an absurdity to look for anatomical features characteristic of the criminal. This did not mean that the criminal was not a subject for biological study. After showing how physical defects and diseases can affect the working of the mind, Dr. Eurich suggested that, given the circumstances, each one of us might become a criminal. He then passed on to the treatment of the criminal on punitive lines, and showed from the statistics of recidivism, from the considered opinions of clergy, prison doctors, visitors and judges that the punitive system is a failure. Punishment has been justified on the plea that it is retributive, but there could only be true retribution if the principle of "an eye for an eye" were followed. Punishment is supposed to be deterrent, but again recidivism and the results of the barbarous treatment of 100 years ago showed that punishment did not so act. Punishment is alleged to be curative. In children it is curative and deterrent—the punishment being effective in direct proportion to the amount of love existing between the punishing parent and the child. This element falls away in the presence of a judge. Consequently the criminal looks on the punishment as an act of vengeance. Finally Dr. Eurich stated that it seemed to him that the function of judge and jury should be the determination of facts and of the

guilt or innocence of the prisoner. If found guilty the function of the judge should end and the prisoner be treated along biological lines, using this in the widest sense. Dr. Eurich gave many examples of the opinions and facts brought forward in the papers.

Dr. REES THOMAS, in discussing the paper, put in a plea for the Borstal system, classifying delinquents as (a) feeble-minded (b) psychoneurotic and physical. He claimed 90 per cent. of cures for the system. The punitive methods in Borstal were merely a system of discipline. He advocated also permanent medical officers for prisons and courts.

DRS. BEDFORD PIERCE, GEDDES, EADES and others also spoke.

After a full discussion the following resolution was passed:

"That this Division desires to place on record that the attack on Mental Hospitals made by Dr. M. Lomax in his book *The Experiences of an Asylum Doctor* is not justified, and is calculated to cause a great deal of unnecessary pain to the relatives of patients; and that the accusations contained in the summary at the end of his book are untrue."

"Further that Dr. Lomax's letter to the *Daily Telegraph* of 25th October makes grave charges of systematic cruelty on the part of male and female nurses, against which the Division protests in the strongest terms."

This resolution to be sent with the suggestion that the Council of the Association should deal with the matter.

This concluded the meeting.

SCOTTISH DIVISION.

THE AUTUMN MEETING of the Scottish Division of the Medico-Psychological Association was held in the Royal College of Physicians, Queen Street, Edinburgh, on Friday, November 18th, 1921.

Prof. G. M. Robertson occupied the Chair. There was a good attendance of members, and Drs. Brock, George Kerr and Murray Lyon were present as guests.

The minutes of last Divisional Meeting were read and approved, and the Chairman was authorised to sign them.

The SECRETARY submitted letters of acknowledgment from the relatives of Dr. David Yellowlees and Dr. Maxwell Ross, thanking the members of the Division for the kind letters of sympathy.

The SECRETARY reviewed the steps taken since last meeting regarding the Division's amendments to the Asylums Officers' Superannuation Act, and reported that in England the Sub-Committee had been unsuccessful in securing an interview with the Minister of Health on the subject. It was remitted to the Business Committee to consider, and take any local action that might be thought expedient towards obtaining the desired amending legislation.

The SECRETARY submitted a letter from H.M. Inspector of Anatomy for Scotland, directing attention to the serious shortage of subjects in the anatomy rooms of the teaching schools, and asking the co-operation of the members in increasing the supply. After discussion it was agreed that each Medical Superintendent should, as far as he could, help when circumstances made this possible, and the Secretary was instructed to reply accordingly.

The Business Committee was appointed, consisting of the Nominated Member and the two Representative Members of Council, along with Dr. R. B. Campbell, Dr. McAlister, and the Divisional Secretary.

Drs. Donald Ross and N. T. Kerr were nominated by the Division for the position of Representative Members of Council, and Dr. W. M. Buchanan was nominated for the position of Divisional Secretary.

The following candidates, after ballot, were admitted to membership of the Association:

(1) Robert Dick Gillespie, M.B., Ch.B.Glasg., Junior Assistant Physician, Royal Asylum, Gartnavel, Glasgow. (Proposed by Drs. D. K. Henderson, Oswald, and Buchanan.)

(2) David Yellowlees, M.B., Ch.B.Glas., 5, St. James's Terrace, Glasgow, W. (Proposed by Drs. D. K. Henderson, Hotchkis, and Buchanan.)

Dr. HAYDN BROWN (London) read a paper entitled "Psychotherapy," which

contained an exposition of his method of restoring disorders of nerve and brain functioning by "neuro-induction"—a method which he claimed to be new to science. The technique of the method was then demonstrated on a patient. The discussion which followed was taken part in by a very large number of members and guests, who all, without exception, vigorously criticised the paper. The chief grounds of criticism were that "neuro-induction," as demonstrated, was simply the use of suggestion in a state of complete relaxation, akin to the hypnoidal state of Boris-Sidis; that the introduction of a new term like "neuro-induction" was not justified; and that Dr. Haydn Brown's psychology was confusing, through the use of new terms without exact definition, and the use of old terms in new meanings.

A vote of thanks to the Chairman for presiding terminated the meeting.

IRISH DIVISION.

THE AUTUMN MEETING of the Irish Division was held on Thursday, November 3rd, 1921, at the Royal College of Physicians, Kildare Street, Dublin.

Dr. W. R. Dawson took the Chair.

The Minutes of the previous meeting having been read and signed, an apology for unavoidable absence was read from Dr. J. O'C. Donelan. Before the next ordinary business was proceeded with, the following resolution was proposed by Dr. RAINSFORD, seconded by Dr. GREENE and passed unanimously, and the Hon. Secretary was directed to forward a copy of it forthwith to Dr. Colles :

"That we, the members of the Medico-Psychological Association, having learned of the resignation of John M. Colles, K.C., LL.D., Registrar in Lunacy and Honorary Member of this Association, desire to place on record our keen sense of the loss which we, in common with the speciality in Ireland, sustain by his relinquishing the office of Registrar in Lunacy which he held for so many years. During his long and efficient term of office Dr. Colles has been at all times unequalled in his ability in administering the affairs of Chancery lunatics, to whose interests he was devoted, and his visits to the Institutions, public and private, marked as they were by zeal and courtesy, will be much missed by physicians and patients alike.

"We desire to tender to Dr. Colles our most heartfelt wish that he may enjoy for many years his well-earned retirement. He carries with him our highest esteem and regard."

Communications from Dr. Mills and Dr. Hetherington, with reference to the correspondence recently addressed to them, were communicated to the meeting (*vide p. 390, vol. lxvii, July, 1921*).

It was left to the Hon. Secretary to arrange for a suitable place to hold the Spring Meeting.

The Hon. SECRETARY explained to the meeting that, owing to unforeseen circumstances, it was not possible for him to arrange for or hold the Summer Meeting of the Division. His explanation was considered satisfactory.

Owing to the regrettable and unavoidable absence of Dr. Donelan, it was decided to postpone the discussion on the subject of "Parole" until the next meeting of the Division.

Dr. M. J. NOLAN next proceeded to read his communication on "The Paraphrenias" (*vide p. 1*). The paper was rendered doubly interesting by the exhibition of photographs and collection of autograph letters and albums compiled by the patients whose cases were dealt with in the paper. The Chairman complimented Dr. Nolan on his most interesting communication, and especially upon the four perfect examples of the paraphrenias which he had described. The paper was discussed by Drs. RUTHERFORD, MILLS, RAINSFORD, GREENE and LEEPER, and all expressed their appreciation of its great interest. The connection between the paraphrenic and the paranoid patient was considered, and an effort to draw lines of symptomatological demarcation between the two conditions was referred to by the speaker. All the members expressed their appreciation and thanks to Dr. Nolan for the valuable contribution he had brought before the Division.

This terminated the proceedings.

PARLIAMENTARY NEWS.

February 9th, 1922: Asylum administration.—Mr. T. THOMSON asked whether, in view of difficulties in securing some of the evidence necessary to enable the Departmental Committee of the Ministry of Health to investigate completely charges made as to the treatment of asylum patients, Sir Alfred Mond would reconsider the desirability of recommending the appointment of a Royal Commission with full powers both of investigation into the present system and a recommendation as to the future treatment of all types of mental disorder.—Capt. LOSEBY asked a question on the same subject.—Sir A. MOND, in a written answer, said that the question of the appointment of a Royal Commission was under due consideration. It would, however, necessarily involve a long delay before any practicable steps could be taken, and would postpone reforms which by general agreement he hoped might be introduced at an early date. In view of the necessity for an expeditious investigation into the allegations made by Dr. Lomax he had appointed a Departmental Committee. He was informed that neither of the medical members was, nor had been, associated with any asylum maintained out of public funds, nor was it correct to say that the chairman was in any sense a representative of the system criticised. He feared that it was impossible for him to obtain the services of any expert who had not already shown interest in Dr. Lomax's criticisms. He regretted that Dr. Lomax was not prepared to substantiate before the Committee the charges he had publicly made, and that the National Asylum Workers' Union had refused to defend their members against Dr. Lomax's charges; but he could not admit that either Dr. Lomax or they were entitled to dictate the composition of any tribunal or inquiry on the issues raised, for the appointment of which the Minister was solely responsible.

February 15th, 1922: The asylums inquiry.—Capt. LOSEBY and Mr. MILLS asked further questions of Sir A. Mond in regard to the departmental inquiry into lunatic asylum administration.—The MINISTER repeated that in his opinion the tribunal appointed to investigate the allegations made by Dr. Lomax was quite impartial, and that it was now for the latter to substantiate his charges or to withdraw them. In reference to the refusal of the Asylum Worker's Union to be represented at the inquiry, Sir A. Mond said that his information was that they refused because they wanted to have a representative on the Committee. Considering that they were the people who were mainly attacked by Dr. Lomax, it obviously would not be proper to put them on the Committee.

February 16th, 1922: Mental deficiency.—Mr. LESLIE SCOTT asked whether the Minister of Health had been able, in consultation with the Board of Control and the Treasury, to reconsider the position created by the circular of the Board of Control of August last in relation to the financial limitation of local authorities in dealing with urgent cases of mental deficiency. He asked whether the circular would not be withdrawn, as its operation would prevent large numbers of cases being dealt with under the Act, with results to the rates and taxes that would be far more expensive.—Sir A. Mond said that in view of the economy which it should be possible to secure on the mental deficiency service generally, he hoped that local authorities could now make such provision as was essential to enable new urgent cases to be dealt with, and he was causing the Board of Control to issue a circular accordingly.

February 23rd, 1922: Asylum administration inquiry.—On further question by Mr. R. RICHARDSON, as to the refusal of the National Asylum Workers' Union to submit evidence before the Committee on Asylum Administration, Sir A. MOND said that in the first instance the Union made a verbal request for representation on the Committee. When he refused this the Union declined to give evidence, and sought to justify its action on the ground that representatives of the Medico-Psychological Association predominated on the Committee.

EDUCATIONAL NOTES.

London County Council: The Maudsley Hospital.—Lectures and practical courses of instruction for a Diploma in Psychological Medicine, fourth course, 1922:

Part II.—Six Lectures on the Pathology of Mental Diseases, including Brain Syphilis, its Symptomatology and Treatment. By Sir Frederick Mott, K.B.E.,

M.D., LL.D., F.R.S., F.R.C.P. On Mondays, at 2.30 p.m., commencing April 3rd, 1922.

Eight Lectures on the Psychoneuroses. By Bernard Hart, M.D. On Mondays, at 4.30 p.m., commencing on April 3rd, 1922.

Twelve Clinical Demonstrations in Neurology. By Sir Frederick Mott, K.B.E., M.D., F.R.S., F.R.C.P., and by F. Golla, F.R.C.P. On Tuesdays, at 2.30 p.m., commencing on April 4th, 1922. [The first six demonstrations will be given by Dr. Golla at the Hospital for Paralysis and Epilepsy, Maida Vale. An announcement will be made later regarding the six clinical demonstrations by Sir Frederick Mott.]

Eight Lectures on the Practical Aspect of Mental Deficiency. By F. C. Shrubsall, M.D., F.R.C.P. On Wednesdays, at 2.30 p.m., commencing April 5th, 1922.

Six Lectures on Crime and Insanity. By W. C. Sullivan, M.D. On Wednesdays, at 4 p.m., commencing April 5th, 1922.

A Course of Lectures on the Differential Diagnosis and Treatment of Mental Disorders—Legal Relationships of Insanity. By C. Hubert Bond, D.Sc., M.D., F.R.C.P., and E. Mapother, M.D., M.R.C.P., F.R.C.S. On Thursdays, at 2.30 p.m., commencing April 6th, 1922.

University of London Extension Board.—A Course of Post-Graduate Lectures on Mental Deficiency supplemented by a Course of Clinical Instruction. The course will be of two weeks' duration, beginning on Monday, June 12th, 1922, and ending on Saturday, June 24th, 1922. The course will be based on the requirements of the Syllabus for the University of London Diploma in Psychological Medicine. The University will grant a certificate of attendance to those who have attended the whole course regularly, taking both theoretical and practical work.

Lectures on mental deficiency.—Unless otherwise stated lectures will be delivered at the University of London, South Kensington.

Ten Lectures by A. F. Tredgold, Esq., M.D., M.R.C.P., F.R.S.Ed., on Mental Deficiency, Causation, Classification, Histology, Differential Diagnosis, etc.

One Lecture by W. C. Sullivan, Esq., M.D., B.Ch., B.A.O., Medical Superintendent, H.M. Criminal Lunatic Asylum, Broadmoor, on the Relationship between Crime and Mental Defect.

One Lecture by E. Prideaux, Esq., M.R.C.S., L.R.C.P., on Psycho-Neuroses in Relation to Mental Deficiency.

Five Lectures by F. C. Shrubsall, Esq., M.A., M.D., F.R.C.P., on Administrative Procedure.

Three Lectures by Cyril Burt, Esq., M.A., on Psychological Tests.

Two Lectures by Lucy Fildes, B.A., Holder of Board of Control Research Studentship at the Psychological Laboratory, Cambridge, on Methods of Training.

Clinical work.—Each student will visit one special school and one large certified institution for defectives, and will attend demonstrations by the lecturers (Dr. Tredgold, Dr. Shrubsall, and Mr. Cyril Burt) and other experts. Arrangements will also be made, if desired, for individual students to visit other special schools or homes.

Fees and applications.—Registration fee, £1 1s.; fee for the course, £5 5s. The course will only be held if a sufficient number of students are registered. Intending students are therefore asked to send in their applications as soon as possible. No applications will be entertained after Monday, May 22nd, 1922. The registration fee of one guinea must be paid at the time of application, and the fee for the course must be paid by May 22nd. If applicants withdraw from the course before May 29th, 1922, the fee of five guineas will be returned, or carried forward to another course, as preferred. After that date no fee can be returned. A detailed syllabus of the course may be obtained on application at the end of March, 1922. Cheques should be made payable to Miss Evelyn Fox, C.A.M.W., and crossed Barclay's Bank, Ltd. All communications with regard to the course should be addressed to Miss Evelyn Fox, at the University of London, South Kensington, S.W. 7.

THE MENTAL AFTER-CARE ASSOCIATION.

THE ANNUAL MEETING of the Mental After-Care Association was held in the Apothecaries' Hall on February 24th, 1922, under the Presidency of Dr. W. F. R. Burgess, O.B.E., the Worshipful Master. Sir Claud Schuster, K.C.B., K.C., Secretary to the Lord Chancellor, in moving the adoption of the annual report presented by Dr. Henry Rayner, Chairman of the Council, said:

It falls to my lot to move the adoption of this report.

I could have wished that the task had fallen to other hands. Someone, who had actual personal experience of asylum administration or of the cure of mental diseases, could have from the depths of his knowledge impressed upon you the lessons of the report with greater power of conviction.

Someone who was not in any way connected with the administration of the lunacy laws could have spoken with greater freedom.

Someone who was trained to speech rather than to silence could have pleaded the cause with an eloquence which I cannot summon to my aid.

It is my fortune and your misfortune that I have to address you as a bureaucrat—that is to say, a person, as I gather from the papers, of limited mental horizon, small intelligence, and closely restricted sympathies, or to speak more frankly, one whose acquaintance with this subject is derived in the main from books and papers and reports and the conversation of other men.

Now to one who depends for his knowledge in the main on the reports of the Lord Chancellor's Visitors and of the members of the Board of Control, what would be in this respect of the subject the most salient characteristic?

There is an old and hackneyed quotation which should be inscribed in the room of every bureaucrat, in letters I sometimes think of gold, and I sometimes think of lead.

"For forms of government let fools contest;
What e'er is best administered is best."

I do not suppose that even when those lines were written they were intended to be—and I am sure that they now could not be—taken without some qualification. If you include in forms of government those rigid rules which appear in the Statute Book as regulating the law relating to lunacy, many of you think, I know, that they are capable of improvement—that in their endeavour at once to safeguard the community and to provide efficient protection for the liberty of the subject, they lay insufficient stress upon those curative influences to the use of which modern science looks forward with so much hope. On these matters I must touch but lightly, and I only do so at all for a purpose which will appear hereafter.

But with regard to the second limb of the maxim, in lunacy administration, as in many other fields of administration, it is certainly capable of being expressed slightly differently. Perhaps the poet would have expressed it differently had he not been constrained by the exigencies of metre. I think it might read—"What e'er is administered in the best spirit is best."

What strikes me in the reports of the men of whom I have spoken is the spirit in which their work is approached, and the intense sympathy, descending even to the most trivial detail of personal comfort, which they evince in everything which concerns the welfare of those unhappy beings who are under restraint.

Such a spirit is the first essential—whether the restraint be exercised at home, in private institutions, or in the largest public mental hospital. No one says that the administration is not capable of improvement—that there is no carelessness, no hasty word, no neglect. In so difficult and anxious a service it would be wonderful if there were never cause for complaint. When we are dealing with creatures so helpless it would be tragic if no complaint were ever made.

Still, the essential fact remains that so long as a mental patient is under the charge of the law, his every act and deed is watched, his every need provided for.

Consider what it means when a human being, who has passed through a paroxysm of this awful disease and is pronounced cured, or sufficiently recovered to be discharged from custody, receives his liberty. Think how helpless he must be when he re-enters the world from which he has been secluded. If he was engaged in business, he has probably lost it during his seclusion. If he was a worker with his hands, he has lost touch with his old associations, in some sense he has lost

some of his former skill, and if this stood alone, he would then find it more difficult than most men in obtaining employment.

Unhappily, it is not these causes alone which retard henceforth his progress in the world. There clings to him the stigma of lunacy. He was probably a trouble to his family and to his friends before they had to have recourse to the law to take his guardianship.

And then such patients—even those who have partially, or perhaps wholly, recovered—are not as a rule the most efficient citizens; they are not pleasant persons to deal with. They are too often whimsical, uneasy, restless and exacting. Sometimes the temptations to which they gave way and which led to their affliction are unpleasant in their consequences, and those temptations are only too ready to present themselves again when the restraint has been removed. Again, lunacy, through all the ages, has been looked upon by the world at large, who suppose themselves not to be lunatics, with an almost equal mixture of disgust and derision. When Shakespeare or Eurypides present us with the great tragic figures of Lear or of Hercules, they do indeed tend to purge our emotions with pity and with terror. But it needs the hand of some such great master to remind most of us of the awful nature of the affliction, and of the share which those so afflicted have in our common humanity.

Lastly, think how over all these poor people there hangs the personal fear of a recurrence of the malady. Think what this means. When some great shock, some great sorrow or bereavement comes upon any of us, the first unconscious cry is "I shall go mad," deprecating the extreme calamity which can fall upon a sentient being. Think what it must mean to go on day by day with the knowledge that in the past one has gone mad, with the haunting fear that one may go mad again, and to do this while struggling, with enfeebled frame and reduced resources, to earn one's own living, to recover one's self respect, to make oneself again an efficient and respected member of the community.

It is for these people that this Society exists and to their service that the efforts of its workers are devoted. There are many of them. In the last year for which figures are available, 7,206 persons were discharged from restraint as recovered, and 3,276 were discharged not recovered. Many of these people depend—if they are to retain the sanity which they have recovered—upon such assistance as the Society can render to them to put them on their feet again, and set them on their road to normal life.

Nor is this all. Medical science, as I understand, is more and more sanguine of the possibilities of recovery if the patient is treated in the early stages of the malady. If medical science is right in reaching that conclusion, an inestimable boon will have been conferred upon humanity, when opportunity offers to put the theory to the test. We shall have fewer permanent inmates of mental hospitals and homes, and fewer in single care. But, from the point of view of the Society, we shall greatly increase the numbers of those who are discharged and who have become objects for the Society's care. It may be said that, to some extent, they will not suffer the same disabilities as those who are discharged from certificates. I am not wholly confident that that result will follow. The mere association with the mentally afflicted, the mere fact that it has been found necessary to place a man—even at his own request—under institutional care, will, I greatly fear, put him under disadvantages in after life.

For all these people, then—those who have been already discharged, those who are now under care and will be discharged hereafter in due course, and those who, if the new system is put into operation hereafter, return to the world after but a short period of treatment—we appeal for help, and with that object I now move the adoption of the report.

Other speakers were—Sir James Crichton-Browne, F.R.S., Lieut.-General Sir John Goodwin, K.C.B., Dr. C. Hubert Bond, C.B.E., Mr. C. Marriott and Mr. Lionel Faudel-Phillips, and grateful references were made to the work of the Secretary, Miss E. D. Vickers, to whose untiring efforts the successful working of the Association is largely due.

LUNACY REFORM.

The conference on Lunacy Administration which was called by Sir Frederick Willis, the Chairman of the Board of Control, ended its sittings yesterday.

The conference was attended by practically the whole of the medical superintendents and chairmen of visiting committees of county and borough mental hospitals in England and Wales, the medical superintendents and chairmen of managing committees of registered mental hospitals, and the superintendents of some of the licensed houses.

Sir Alfred Mond, in his opening address, mentioned that the chance of getting legislation would be very much increased if there was unanimity as to the alteration of the law which was desired, so as to permit of the treatment of early cases without certification. This subject was very fully discussed at the conference, and they arrived at the following unanimous conclusions :

- (1) That early treatment without certification should be legalised.
- (2) That by early treatment very many cases would be prevented from suffering permanently from mental breakdown.

(3) That such early treatment should only be given in institutions or homes approved for the purpose by some Government department.

(4) That the Government department upon whom the duty of supervising this work should be placed should be the Board of Control.

The conference did not desire that any hard-and-fast lines should be laid down as to where early treatment should be provided. Sometimes it might be best if provided at a general hospital, sometimes at a public mental hospital, and sometimes in an approved home. The essential thing was to secure the best arrangements possible in any area.

The conference also unanimously agreed that the law should be altered so as to allow of the reception of voluntary boarders in public mental hospitals, and that local authorities should be empowered to contribute towards the expense of early treatment when it was carried out by some one other than themselves.

Another subject which was discussed was the great importance of research and pathological work. The amount of this work which is at present being conducted is not realised by the general public, but a strong desire was expressed by various speakers that it should be still further extended, and that local authorities should be authorised to combine for this work wherever it seemed to them desirable.

It was generally agreed that there should be women members on all visiting committees, but there was no unanimity on the suggestion that every institution in which there were women patients should have women doctors on the staff. A number of speakers, however, urged this.

As to the medical staff generally, a strong feeling was expressed that the medical superintendent should delegate his non-medical duties as far as practicable, and that visiting committees should be prepared to provide medical superintendents with sufficient lay staff to carry out the business arrangements for the institutions. The general view was expressed that the position of an assistant medical officer should be made more attractive, and that these officers should be encouraged to take up post-graduate courses and to take the Diploma in Psychological Medicine.

Several members urged the value of the employment of visiting specialists, such as dentists, surgeons, bacteriologists and radiologists, at mental hospitals. Already many public mental hospitals have the advantage of the services of such specialists.

As to the nursing staff, it was generally agreed that the matron and those nurses who occupy the more important posts should all have had not only special training in the nursing of mental cases, but that they should have undergone a full general hospital training. Many of our public mental hospitals already have such trained nurses.

In regard to general improvements in lunacy administration, it was urged that it would be an advantage to divide England and Wales up into some eight or ten areas, and to have an advisory committee acting for these areas for an interchange of ideas and discussion of the problems and difficulties arising.

The conference closed with a vote of thanks to the London County Council for their kindness in allowing the conference to use the County Hall, Spring Gardens; and a vote of thanks to Sir Frederick Willis for having convened the conference.—*Vide The Times, January 21st, 1922.*

CHARGES AGAINST ASYLUMS.

The Minister of Health has appointed a Committee consisting of Sir Cyril Cobb, K.B.E., M.V.O. (Chairman), R. P. Smith, Esq., M.D., F.R.C.P., Bedford Pierce, Esq., M.D., F.R.C.P., with Mr. P. Barter, of the Ministry of Health, as secretary, "to investigate and report on the charges made by Dr. Lomax in his book, *The Experiences of an Asylum Doctor*, and to make recommendations as to any medical or administrative improvements which may be necessary and practicable in respect of the matters referred to by Dr. Lomax without amendment of the existing Lunacy Laws."

The Committee will ordinarily hear evidence in public, and the time and place of meetings for this purpose will be announced in the Press. The Committee will, however, reserve the right to hear evidence in private in any case where they consider such a course desirable.

The Committee will hear such evidence as is necessary for the investigation specified in the terms of reference, and cannot undertake to hear evidence in regard to the amendment of the existing Lunacy Laws.—*Vide The Times*, January 9th, 1922.

THE GEDDES REPORT.

BOARD OF CONTROL, ENGLAND AND WALES.

1913-14, audited expenditure, £21,464; 1921-22, net estimate, £511,364; 1922-23, provisional net estimate, £535,968.

Since the provisional estimate was submitted a revised estimate has been put forward, showing a reduction of £5,528.

The number of places provided at present in the institutions to which the State contributes is 15,000 and there are now 9,000 patients in those institutions. We were told that there was a large number of mentally defective persons outside the institutions. If this were not an activity which we regard as essential to the physical and moral health of the nation, we would have recommended a substantial reduction in the vote in order to enforce economy. In the circumstances we refrain from any reduction, pointing out, however, that a larger number of these afflicted persons could in our opinion be taken into these institutions within the limits of the estimates. There are at the present time 6,000 places unoccupied.

We recommend that the necessary steps be taken to change this grant from a "percentage" basis to a "*per capita*" basis coupled with provisions to ensure adequate treatment and economical management.

SCOTLAND.

1913-14, audited expenditure, £6,139; 1921-22, net estimate, £71,733; 1922-23, net estimate, £76,333.

Since this estimate was prepared it has been intimated that the amount to be provided for 1922-23 will be increased by £28,325.

The average cost per head is lower than in England. We recommend no reduction in the sums asked for, but, as recommended for England and Wales, the grant should be on a "*per capita*" basis, and all necessary steps should be taken to ensure economy.—*Vide The Times*, February 11th, 1922.

BOARD OF CONTROL COMMITTEES OF INQUIRY.

The Board of Control have, with the approval of the Minister of Health, appointed the following committees:

Dietary.—Dr. R. W. Branthwaite, C.B. (Chairman), Commissioner of the Board of Control; Dr. M. Greenwood, Medical Officer (Medical Statistics), Ministry of Health; Dr. R. Worth, Q.B.E., Medical Superintendent, Springfield Mental Hospital; Dr. L. O. Fuller, Medical Superintendent, Three Counties Mental Hospital, Arlessey, Beds.

Clinical Records, etc..—Dr. A. Rotherham (Chairman), Commissioner of the

Board of Control; Dr. H. A. Kidd, C.B.E., Medical Superintendent, Graylingwell Hospital, Chichester; Dr. S. J. Gilfillan, O.B.E., Medical Superintendent, Colney Hatch Mental Hospital.

Nursing Service.—Dr. C. Hubert Bond, C.B.E., F.R.C.P. (Chairman), Commissioner of the Board of Control; Dr. G. F. Barham, Medical Superintendent, Claybury Mental Hospital; Mrs. E. How-Martyn, M.Sc., Chairman of the Springfield Mental Hospital Committee; E. A. Medus, Esq., Chairman of the Netherne Mental Hospital Committee; Mrs. Hume Pinsent, Commissioner of the Board of Control; Dame Louise Gilbert Samuel, D.B.E., Member of the Chelsea Borough Council; E. Sanger, Esq., J.P., L.C.C.; Miss M. M. Thorburn, R.R.C., Matron, Horton Mental Hospital; Dr. H. Wolseley-Lewis, F.R.C.S., Medical Superintendent, Barming Heath Mental Hospital.

THE ASSOCIATION REGISTER: A CORRECTION.

Owing to an unfortunate misunderstanding the name of Dr. Alexander Ninian Bruce was struck off the Association register published in the January number. A letter of apology and regret has been addressed to Dr. Bruce by the General Secretary and his name restored to the register. The number of ordinary members was thus 632, bringing the total membership up to 667. (*Vide p. xxix, January number, 1922.*)

OBITUARY.

HENRY KINGSMILL ABBOTT, B.A., M.D., B.Ch.Dublin, D.P.H.

DR. ABBOTT, a member of the Association since 1900, died on February 27th, 1922, at Fareham Asylum, of which he was the Medical Superintendent. He was born at Monkstown, Co. Dublin, in September, 1863, being the eldest son of a well-known scholar, the late Rev. Thomas Kingsmill Abbott, Litt.D., D.D., Senior Fellow of Trinity College, Dublin. He was educated at the old Kingstown Grammar School and at the Evesley College, Dublin, and entered Trinity College in 1881. He obtained term honours in Natural Science and Logic, and graduated B.A. in 1885. He obtained the degrees of M.B., B.Ch. in 1887 and the degree of M.D. was conferred upon him in 1897. He took his D.P.H. with honours in 1898.

During his university career Dr. Abbott was fond of all kinds of athletics. He rowed for the old Dublin University Boat Club and was keen on both cricket and football. His interest for sport was maintained throughout his life, and until quite shortly before he died he bicycled over regularly from Fareham to Hayling Island Golf Club to indulge in his favourite game. He was an excellent bridge and billiard player and was a much respected member of the Royal Albert Yacht Club at Southsea. After serving a short time as surgeon on one of the shipping lines to India, Abbott was appointed in 1890 as Assistant Medical Officer at Hants County Asylum, and in 1906 he succeeded the late Dr. Worthington as Medical Superintendent. He was also for a time Stewart Lecturer on Mental Disease in Trinity College, Dublin, and Examiner in Psychiatry for the University.

He was a man of wide culture and a great reader, but he was an extremely reserved and unassuming man and few people suspected the extent of his knowledge. He went quietly about his work and administered his asylum conscientiously and with conspicuous ability. He was extremely just in his decisions, sound in his judgments, and the writer often found his advice of great value in administrative problems. He was a man of remarkable will-power, and this was seen particularly in the fortitude and courage with which he bore the prolonged illness which terminated fatally. He made no difference whatever in the routine of his life, and scarcely ever referred to his illness even to his most intimate friends. Almost up to the end he played golf and did his work, and he only took to his bed a few days before his death. He was buried in the Asylum Cemetery, according to his wishes. His funeral was attended by his brother, Canon T. F. Abbott, B.D., and other relatives, members of the Visiting Committee, the Staff, and a number of his personal friends. He will be much missed in the asylum, to which he gave thirty-two years of faithful service.

In Abbott the writer has lost a personal and greatly esteemed friend, and he is glad to have an opportunity of paying a tribute to his memory. H. DEVINE.

JOHN TURNER, M.B., C.M.

We regret to announce the death of Dr. Turner, late Medical Superintendent of Essex County Mental Hospital, Brentwood. An extended obituary notice will appear in our next number.

NOTICES OF MEETINGS.

ANNUAL GENERAL MEETING: At the Royal College of Physicians, Edinburgh. Monday, July 17th: Committee meetings at 3 p.m.; Council Dinner in the evening.

Tuesday, July 18th: Council and committee meetings.

Wednesday, July 19th: Council meeting concluded; general meeting—morning session; at 1 p.m. the Managers of the Royal Hospital at Morningside invite members at 3 p.m. to lunch; afternoon session, Presidential Address; 8.30 p.m., "At Home" at Craig House.

Thursday, July 20th: At the University—subject, "Ætiological Factors of Insanity"; Association Dinner in the evening.

Friday, July 21st: Open Discussion on the Treatment of Insanity.

[**BRITISH MEDICAL ASSOCIATION** (Section of Neurology and Psychological Medicine) at Glasgow. Tuesday, July 25th: Discussion on Psychotherapy will be opened by Drs. Mitchell, Brown and Crichton Millar. Wednesday, July 26th: Discussion on Neuro-syphilis will be opened by Sir James Purves Stewart and Dr. Kinnier Wilson. Thursday, July 27th: Papers. President of the Section, Prof. G. M. Robertson.]

Quarterly Meeting.—May 24th, at 11, Chandos Street, London, W., Council and Committee meetings in the afternoon. May 25th, in the morning, paper by Sir F. W. Mott, K.B.E.; afternoon, the 3rd Maudsley Lecture by Sir Maurice Craig, C.B.E.

South-Eastern Division.—May 2nd at the East Sussex Mental Hospital, Hellingly, Sussex.

South-Western Division.—April 28th, 1922, at the Dorset Mental Hospital.

Northern and Midland Division.—April 27th, at the Derby Mental Hospital, Rowditch.

Irish Division.—April 6th, 1922; July 6th, 1922.

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Part I.—Original Articles.

The Third Maudsley Lecture. Delivered by Sir MAURICE CRAIG, C.B.E., M.A., M.D.Camb., F.R.C.P., at the Quarterly Meeting of the Medico-Psychological Association of Great Britain and Ireland, held at the County Hall, Spring Gardens, London, on Thursday, May 25th, 1922.

SOME ASPECTS OF EDUCATION AND TRAINING IN RELATION TO MENTAL DISORDER.

WE are met to fulfil the behest of one of the most distinguished physicians of psychological medicine of recent times. Maudsley was a leader in his lifetime, and he lit a lamp for research which it is our duty and that of the generations which follow after to keep burning. He was a man with a great insight and practical withal, for he has left behind him benefactions which are endowed by his inspiration and which must live with increasing benefit to mankind. The acuteness of Maudsley's vision is demonstrated by the method in which he founded these lectures; he perceived, and perceived rightly, that mental disorder was not purely a medical problem, but that there was a lay side to it which was of vital importance, and in consequence he directed that in alternate years a scientific and a popular lecture should be given. He wrote that "there are not many natures predisposed to insanity but might be saved from it were they placed in their earliest days in exactly those circumstances and subjected to exactly that training most fitted to counteract that innate infirmity." No doubt this connotes much, and to some it may seem an overwhelming task. For it would appear to include a full appreciation of how mental disorder is brought about; what, if any, are the precursory indications, and what symptoms, when present, should be regarded as potentially dangerous to the future welfare of the mind of an individual. The inquiry is a fascinating one, and the problem can be more quickly unravelled by the working of physician, psychologist and educationalist in close collaboration. Mental disorder

unfortunately, as things are at present, only becomes a medical matter when it has advanced a considerable distance, but this must be changed, and it must be our endeavour as physicians to control its very beginnings. Whilst it is right to devote time and energy to examine scientifically every means by which the recovery or the alleviation of mental disorder may be brought about and to use them to the full, in the end the return for these labours must be limited ; to control its gateways and to prevent its occurrence far out-rivals any treatment of disorder that has once become established. In fact it is doubtful whether a complete recovery ever does take place in the sense that the patient is free from any scarring from the experience he has passed through. Preventive medicine is the side of medical science which is most attractive, offering as it does benefits of infinite value both to the individual and to the nation. Investigation tends more and more to establish the view that many disorders have their inception in childhood and experience confirms that this is true of the more common types of mental disturbance. It is on this account that I have decided to take as my subject for this lecture "Some Aspects of Education and Training in Relation to Mental Disorder." The term "education" will be used in its widest sense and will connote the instruction and upbringing of the child both at home and in the school.

Controversy has always centred round the question whether mental disorder is in the main psychogenetic or physicogenetic, and each theory has its able exponents. Experience has satisfied me that there is truth in both views and that it is unwise to disregard the potentialities of either of them. No doubt there is a mental instability in the majority of those who develop psychoneuroses or psychoses, but lowered physical health may be the final determining cause of the breakdown, and I would go even further and suggest that in many of these cases, had the bodily health remained satisfactory, no serious nervous disturbance would have occurred. We cannot separate mental and physical processes, and it would seem unwise to attempt to do so when we appreciate how strong is the evidence of the interaction which takes place between them. Therefore, in the theme before us it will be necessary to consider the child as a whole and to give due heed to both its physical and mental development. To regard it otherwise is to fall into the error too frequently encountered which not uncommonly results in faulty diagnosis. Further, let me predicate that the infant referred to in this thesis is the apparently normal, and not one who would suggest mental enfeeblement from birth.

It is not my intention to discuss the laws of inheritance further than to remind my hearers that, though the child tends to inherit

the attributes of its parents, fortunately it is nothing more than a tendency, and to be forewarned is to be forearmed, and the knowledge of any weakness can and should be used to the benefit of the child. To ignore the possibility of any known weakness developing is to court disaster, whereas to appreciate it and to take steps to lessen its influence will in many instances repay the effort which has been expended.

Our first step must be to consider if there are any mental factors whose presence is conducive to the development of mental disorder. As I am addressing an audience largely consisting of laymen, I must tell you that there are types of insanity which, like some physical diseases, are intrinsically part of the organism, and for which, with our present knowledge, little can be done either to prevent or to remedy. Fortunately these form by far the smaller group, whereas the larger includes the many which result from nerve exhaustion and emotional states. Therefore it must be to the latter that attention should be first directed on account both of the number of cases and of the greater possibility of prophylactic measures.

Maudsley writes : " Insanities are not really so different from sanities that they need a new and special language to describe them, nor are they so separated from other nervous disorders by lines of demarcation as to render it wise to distinguish every feature of them by a special technical nomenclature. The effect of such a procedure can hardly fail to be to make artificial distinctions where divisions exist not in nature, and thus to set up barriers to true observation and inference." It is these artificial barriers that have in the past so encumbered the way of progress. When one appreciates that in a given individual nothing more than exaggerated and uncontrolled normal characteristics may constitute mental disorder, we realise how narrow is the margin between those whom we call the sane and the insane.

Mental evolution should take place in a definite order and within certain recognised periods and any delay should be noted, but even more important is it to watch for any regressive symptoms which may indicate a failure or a dropping back to an earlier phase in the child's life-history. Unless the observer has a keen perception, he will usually miss the beginning of any regression and in this way lose valuable time. Neither must he permit himself to fall into the common error of explaining away all mental changes as matters of no importance. Symptoms may be positive in the form of some new and unwonted mental characteristic, or they may be rather of the negative type, including conditions such as apathy, inattention and the like; they are often protective in purpose, being an effort on the part of the organism to defend itself from any undue stress.

When one reviews a large number of patients who are suffering from nerve exhaustion in varying degrees, there is one symptom which appears early and which stands out in strong relief, and that is hyper-sensitivity. This state is observable not only as a physical sign in the nervous system demonstrable by various tests, but it is a condition which also affects the mental processes. It is to me the symptom of all symptoms which gives rise to many others which in time may so disturb personality as to occasion definite unsoundness of mind. Here we have a symptom which is common to many children, but which in some, by its ever-widening embrace, slowly but surely undermines the whole mental fabric. It leads to unhealthy emotion, to pre-occupation, and to false reasoning; it heightens introspection, and by its presence it aggravates all the normal characteristics of the individual; it disturbs the relationship of self to surroundings, and with this failure of adaptation a sense of inferiority or of irritation may result. It will be appreciated how baneful this hypersensitivity may become, and how by its intensity or by its duration it may injure the mental life of the individual. Nature has its own way of lessening the trying effects of heightened sensitivity, and the recording of acute sensation may suddenly cease and its place be taken by a psychical anaesthesia in which mind may become a blank or in some other way become disordered. Now if hypersensitivity can do all this, it behoves us to treat its advent with an appreciative recognition, and to bring all our knowledge to bear in an endeavour to defeat its progress. We must discover, if possible, how and why it arises, and then the conditions which favour its development, and lastly how it may be remedied or at least mitigated.

Some children are naturally hypersensitive, whereas with others it is acquired. Over-stimulation is probably its most common cause in childhood, and this may be effected in many ways. Some children become over-excited by parties or by passing their days in unsuitable surroundings, and the harm that is being done may declare itself in irritability, querulence, gastric upsets, or disturbed sleep. The naturally quick child is more liable to become over-stimulated than the dull one, and its ease of learning delights both the parent and the teacher in instructing it. The early ability to read has an undoubted danger attached to it, for once it can do this the regulating of the time spent in the study of books can only be carried out with the co-operation of the child. During the early school days the danger of over-stimulation increases, and the brilliant boy develops a new and legitimate ambition to outstrip his schoolfellows in knowledge. The result of this may be a scholarship, and from then onwards his course is fixed, and he must live up to his acquired standard,

not infrequently without consideration of the injurious effect that close concentration is having upon his mental and physical health. Now it must be borne in mind that brain exhaustion is often of slow development and that it may not declare itself until school-days are over, and the mental failure may be in varying degrees of severity. Some authorities hold that the real blame for the competitive system largely rests with the Universities, for these seats of learning are the goal for which the boy strives and for which the parent and the master prepare the way. I cannot do better than quote Dr. Herbert B. Gray, late Headmaster of Bradfield College, who writes in his book on *The Public Schools and the Empire* the following weighty words : " Most physiologists would admit that the mere fact of such competition at such an early age involves a strain more or less harmful in after-life. Apart from the unnatural stimulus of the mental powers, there is the excitement of the premature competition, which is opposed to all sound biological principles. Physiology contends that over-strain in mental effort hastens the period of adolescence, whereas the more highly organised the creature, the slower is he, or he ought to be, in coming to completed growth. Scientific investigations have in fact proved that the delicate mechanism of brain structure forbids such premature efforts of brain evolution. Inductive reasoning tells the same tale. The writer has been in close touch as boy and master with public schools for forty-five years. He is, therefore, familiar with many life-histories, and is at least not 'entirely ignorant of the subject.' At some of the famous schools where scholarships are most valuable, and therefore most eagerly sought after, statistics go to show that winners of such prizes have in a large proportion of instances 'tailed off' either in the stage of early adolescence or soon afterwards. The brain in all these cases is proved to have produced premature results by early forcing. Some boys have shown no lasting power after two years of continued competition at their public school ; others of less delicate brain organisation or otherwise more bountifully nourished 'stay' till half-way through their University course ; while others of still stouter mould do not begin to fail in power until they enter the competition of outer life ; but only a comparatively small percentage fulfil the promise of their earlier years. The mental growth has become stunted and shrivelled ; the plant atrophies, and if it brings forth fruit, it brings forth no fruit to perfection in the maturer years. It is a wasted life." I have quoted Dr. Gray fully on this matter, as his evidence is of the greatest importance, coming as it does from a man of long and wide school experience. Now what is true of the brilliant boy is true in a relative degree of others whose lessened physical stamina renders them more liable to over-stimulation ; defective circulation, respiratory disorders and

zymotic disease all accentuate the danger, and any one of these may be the determining factor in bringing about the collapse of an already over-strained nervous system. Further, if in addition to work the brilliant boy is also successful in games, his risks of breaking down are correspondingly increased. We are apt to forget that it is the same nervous system which serves both mind and body, and first to over-stimulate it on one side and then on the other is to court disaster. I have known not a few child prodigies who have excelled in games and who have in consequence deteriorated mentally before the age of twenty. Physical fatigue may be damaging in several ways, but one of the most important is violent exercise occurring in a comparatively short space of time. I can recall the case of a young girl who developed an exhaustion delirium after running in a paper-chase and who remained in a confused state for several months. I need hardly remind my hearers that such a delirium is almost certain to leave behind it a lowered nervous resistance for very many years. Children who are about to take part in any severe test of endurance should be inspected beforehand, and any who for either physical or other reasons are below their usual health standard should be debarred from the contest together with those who are constitutionally frail. The spirit of many a child far exceeds its power of physical endurance, and this high spirit may be raised even further by a powerful herd instinct which calls for an unusual effort for the good name of some school house or other school division. Further, apart from the actual physical strain, there are some forms of sport which in some young persons lead to an extreme bracing up of nervous tension. Anyone may observe this in the trembling of the muscles of the young aspirant to athletic success ; of course, this is in itself not harmful but even beneficial when such effort is kept within limits, but over-stimulation of the kind may be very damaging if by prolonged effort the nervous energies are over-taxed, or if even a moderate strain is placed upon a physically or nervously reduced child.

Time will not permit me to make an exhaustive inquiry into the various circumstances which give rise to hypersensitivity, for the causes are numerous, including as they do physical diseases and disorders, defective sleep, and the over-action of various mind processes. On the other hand its existence is easy of discernment, and its influence on the growing organism should not be overlooked. I am fully aware that there will be critics who will point to the mental hospitals which draw their patients from the country village and say that these cannot be the victims of over-stimulation. But surely this is no answer, for the problem of mental disorder in the town is not necessarily that of the country and we find conditions in the rural districts which are rare in the urban. Intermarriage with all

its degenerating influences is rife in villages compared with cities, and also a narrowed life has a deteriorating influence of its own.

Failure of power to concentrate attention is quite one of the earliest symptoms of over-stimulation and exhaustion, and the symptom should be quickly discernible in the child. Attention is one of the attributes of normal mind which appears when the normal child reaches a certain age, and if it fails to develop, the faculty for acquiring knowledge is correspondingly diminished, the totally inattentive child being uneducable. On the other hand, if the capacity to attend has once been acquired, to lose it indicates a regression and its import must not be lost sight of. Nevertheless the loss of power of concentration is of value as a means of protecting the nervous system from mental work which might be harmful to it. Unfortunately this symptom rarely secures the recognition it demands, and it is this failure to observe and understand that leads to the development of more serious disorder in later life.

Again, as over-stimulation may in time give rise to inertness, it is necessary to refer to laziness. Owing to the untrained outlook of the lay mind, mental attitudes are apt to be classified in one category without any distinction as to how and why that attitude has come about. "A lazy child is a lazy child," and too often that ends the investigation, and having reached this verdict the sentence is passed in due course. But laziness is a proper mental reaction to a definite debilitated state of mind, and to ignore it or to punish for it would be considered little removed from cruelty if the real circumstances were known. To appreciate the pathological significance of laziness it is only necessary to read the term reports of a number of school-children and to note how frequently we read that this child and that has shown indifference and inattention to his studies during the latter part of the term, and for this he comes in for condemnation. Yet in many cases the condemnation, if any is to be allotted, should be on the writer of this report for his lack of insight and knowledge of mind and its working. In support of my statement I will again quote Dr. Herbert Gray, who writes: "Every schoolmaster knows that the most reproductive work of the term is done during the first half of it, and that both masters and industrious boys 'tail off' in energy about the ninth week through sheer brain-fag." That this is true there is ample evidence, but that it should be permitted to continue is less easy to understand. It cannot be argued that "brain fag" is a benign state even in the adult, but to produce it in the plastic nervous system of the growing child is little short of culpable, and to prevent it must lessen the incidence of nervous and mental disturbances. When laziness is to be observed, search for any legitimate causes that may be giving rise to it, and only find

fault or punish when these have been eliminated. It is, unfortunately, more common to condemn first, and only when correction has failed to produce the desired results, to investigate in other directions. To follow such a course not only increases the mental damage to the child, but it injures personality by establishing a sense of inferiority in the good and a callous indifference in the bad.

As defective sleep is a common cause of the development of hypersensitivity, it will be well to consider it before we leave this subject. All living organisms require proper time for repose, and it is safer to permit of a longer rather than a shorter one, especially during the early and growing years of childhood. The child should be trained to sleep during the day if possible until it reaches the age of five, and to neglect this part of the training not infrequently permits of too rapid development which brings with it restlessness and over-stimulation. Children up to the age of sixteen should have at least ten hours' sleep and from sixteen to twenty, nine hours should be allotted for rest. When considering sleep it is necessary to give weight to the quality as well as the quantity. A restless sleep full of dreams and broken by nightmares is unrefreshing and indicates an unsatisfactory condition of health, and the child who persistently exhibits such symptoms is not in a fit state for the ordinary work of school. The nervously over-stimulated child fails to sleep, and when this happens it indicates that the organic side of life is being disturbed, and this will shortly declare itself in loss of body-weight and other symptoms if steps are not taken to correct it. Again, sleep is rhythmic, and it can easily be broken by interrupting the rhythmic habit by evening dances, theatres and the like. There is little doubt that some parents permit of serious damage to their children by giving them this type of pleasure. Broken sleep is not easily re-established, and even at best once it has been disturbed in this way it is easy to relapse into a sleepless state again. Evening school preparation work has always seemed to me to be of doubtful value, and it is definitely harmful to some children. The work before retiring to bed should be of the lightest, and probably in time we shall see with advantage the hours after tea being devoted to light lectures or instructive games. Some schools are open to criticism for the way that the younger boys are disturbed by the older ones as they go to bed at a later hour. The nervous apparatus for hearing must always be active and alert, as it is largely on this special sense that the sleeping person relies for warning of impending danger. If you doubt this, watch the restless movements that are produced in a sleeping infant by sudden sounds, and these movements are the translation of sensation into action. Some children are definitely awakened, others merely disturbed, by sound, but practically all must be affected by

it. Further, sudden noises not only awaken but startle some persons—this is known to all anæsthetists—and the disturbance created may not quickly subside. Therefore this matter is of practical importance and cannot be brushed aside as a frivolous observation. For a time some children, like some adults, do not appear to suffer from defective or deficient sleep, but because there is no gross objective sign it does not necessarily follow that deterioration is not taking place, and experience teaches that it is the wiser course to treat the condition seriously rather than to venture a hazard that all will be well. Broken sleep of short standing can easily be remedied, but if once established it is a far more difficult proposition.

I will now proceed to consider emotion. We owe to Déjerine a debt of gratitude for the emphasis he has laid on this attribute of mind and how it may affect the mental health. Everyone knows how devastating is passion and how exhausted it leaves the subject who has been enduring it. But emotion exists in varying degrees, and although in its more severe forms its physical concomitants of pallor, flushing, tears, tremors and the like are in evidence, some of the more subtle types are less easy of discernment owing to the apparent absence of somatic signs, and yet they may be working steady and untold havoc. Emotion becomes attached to ideas and groups of ideas, and if the emotion is an unhappy or an unpleasant one, it very readily leads to a "preoccupation" which may slowly absorb attention until it seems to fill the whole field of thought. "Dreads" and "fears" belong to this order and these are not uncommon in childhood. Many fears are unreasonable but this does not lessen their power, and the inability to drive them away is both depressing and terrifying to the sufferer. He must be helped by a sympathetic and philosophic understanding. Unless relieved, a fear of this kind may affect the sleep and produce bodily disturbances and lessen mental activities by setting up a hyperattention on one subject, instead of the normal state of being able to turn the attention in any direction. Now emotion of this or a similar kind may result in the development of a sense of inferiority—a feeling of being unlike others. When this takes place introspection begins to play an important part. The healthy mind is largely extroverted; thoughts are projected outwards, but in certain morbid emotional states the process is reversed and everything is turned inwards. This leads to unhealthy reasoning; it interferes with the relationship of the child to others and not infrequently results in a solitary existence. The child who has formerly been fond of companionship and who in course of time becomes lonesome is usually evolving into an abnormal mental state, and every effort should be made to clear away the difficulties. Unless this can be done, the morbid outlook, which at first is scarcely dis-

cernible, becomes, over extended time, a factor of such importance that life is almost unbearable. For this feeling of inferiority gives rise to suspicions, ideas of persecution and resentment, any of which are factors of no mean importance in the mental make-up of an individual. Some children develop this sense of inferiority from being laughed at by their school-fellows. I do not wish to convey that "chaffing" is not in the main a healthy mental exercise, but it may stultify, if not worse, the intellectual growth of some children, and it is these whom we ought to save if we observe as we should do. I have heard a well-known training officer in the Army say that a man who was "gun-shy" and who was clumsy at games has ultimately excelled in shooting and in sport by steady encouragement, whereas experience has shown that were this not given him and were he allowed to be unduly chaffed, he would drift, as many have drifted, into a solitary, useless person, full of grievances. Remember that mind is never stationary and in the course of evolution factors which are of small moment to-day may in time become of absorbing importance. Maudsley recognised this, for in speaking of extreme shyness which is the unfortunate disqualification of some nervous temperaments, he writes : " Only those who have it can know how sore an affliction it is and how great a let and hindrance to them through life. Nay, it sometimes wrecks a life. For as the unamiable proclivity of mankind, as of other animals, is to set upon and persecute any individual of the species which differs from the conventional type, it happens that when a nervously sensitive and shy boy is sent to school he is teased and bullied there because he is not like other boys. If he meets with no one to understand him, to show him sympathy and kindness, he gets more and more estranged from his fellows, more and more he feels himself a peculiar and separate being, suffers, mopes, and pines in solitude, and in the end is so shattered mentally perhaps as never in after life to get over the injury which has been done to him." Those who have children in their keeping and who believe that boys are best left to themselves to find their own places among their fellows, to statements such as I have just read make answer, " Yes, we know all this, but the few must suffer for the good of the majority." My reply must be, " Is this necessary ? " The educationalist does not keep back the brilliant child ; he bestows upon him his special attention for reasons which are obvious. My experience goes to show that the rewards will be as great for a more careful study of other types.

Repression is a mechanism which has attracted increasing attention with the advent of what is commonly spoken of as the new psychology. Freud laid down that forgetting is not necessarily a negative process but a positive one, and that experiences of an unpleasant

character do not fade away with time, but are definitely repressed out of consciousness. This is probably only partially true; some natures undoubtedly have to treat unpleasant experiences in this way, but many do not do so. Freud realised that there must always be a danger of a conflict taking place between the primitive instincts and the demands of the community, and further that a termination of such a conflict may only be possible by the active repression of the former, which usually entails emotion and is in consequence fraught with danger. If the individual is successful in fully repressing the unpleasant experience, it passes out of the realm of consciousness; nevertheless Freud has shown that it may remain as a dissociated portion of the mind, with the potentiality of becoming active under certain conditions on account of the original emotion attached to it. According to Freud and others its harmful effect is in the amnesia (loss of memory) occasioned by it. Wingfield, in his book on hypnotism, lays special stress upon the preceding emotional state of a repressed painful experience. He gives instances in support of his view that the emotion always precedes the rising of the repressed thought into consciousness, and thus the emotion leads to an automatic shutting out of the incident until in time it is entirely forgotten, the emotion alone remaining. On the other hand, there is no doubt that many so-called repressions are not fully repressed but remain more in the realm of consciousness than some authorities would suggest, but nevertheless they have a very wearing effect upon the nervous system and in the course of time begin to have a deleterious effect upon the mind of the individual. Repression takes place during all ages, but the struggle with authority is more common during certain periods of childhood and the damaging effect of a conflict is more serious upon the growing plastic brain of the young. That Freud was wrong in believing that most of these repressed complexes were sexual in character is becoming increasingly evident, and I have long felt that when this is dropped as an intrinsic part of the Freudian theory the latter will greatly benefit. To me Freud's teaching is valuable, not in its methods of psycho-analytical treatment, but because it emphasises an important factor which had been overlooked—how conflict with subsequent repression may injure the mind. The knowledge of this alone must make parents and educationalists pause for reflection and to examine whether their attitude towards the young in their charge is in accordance with it. It is not my intention to convey that all repression is harmful, for indeed repression is a normal mental process, but like the "will," some persons try to use it for unsuitable purposes. Repressions that are harmful usually tend to centre round some morbid thought or some particularly disturbing experience. It is the psychological atmosphere

in which the child develops that leaves its mark upon its future life, and therefore its later welfare is dependent upon those conflicts, repressions and any other mental conditions leading to unrest being especially guarded against. If this were fully known and appreciated I believe that greater consideration would be given to the conduct of the home. Children, and especially the sensitive ones, are far more perceptive than many adults give credit to; they note the gesture, the conduct and the language of those about them and they rationalise in an elemental way, but it is none the less leaving its impress on their evolving minds. Further, it is all-important to bear in remembrance that it is not the subjects which are freely talked about by the child that are usually harmful, but those upon which he introspects in silence. To the observant person gesture-language will convey as much, if not more, than words, and no one can claim to be an efficient trainer of children unless he is equipped with the faculty of reading it. Words may be misleading, but gesture is seldom so, for the latter is complex and is the outward and visible sign of inward sensation and emotion. As Maudsley once wrote: "What is mind-reading but muscle-reading through movements so fine as to be discernible only by a practised sensibility?" Every adult knows the effect exercised by the environment of an unrestful house and its influence upon a child must be infinitely greater, and when to unrest there is added apprehension or definite fear, it does not call for a great effort of the imagination to appreciate the damage that is being done. The undisciplined man is a burden to himself and a thorn in the side of his fellows, but the child who has to live with him is in danger of mental ruin. This may appear to be forcible language, but thirty years of experience of nerve work forbids me to soften it. The greatest hope for the lessening of the incidence of mental disorder lies in a fuller awakening to the duties of the parent to the child. There is one thing that the State can never effectually perform and that is the office of parent, and those who wish that it should do so either have a very small insight into what is really meant by parental care, or they must feel that the thoughtlessness of the average parent is such that the child is safer out of his keeping. Had we but the vision to see, there is no reason why either of these views should remain active, but to escape from them there is only one way, and that is to increase the sense of responsibility of the parents and not to lessen it, otherwise the natural consequences must follow. Those who call for larger families without seeing that the parents who have them appreciate their duties are incurring a grave responsibility. The stability and happiness of the mass are the combined effect of these virtues in the individual and it is to parental care that we must look to lay their foundations.

The child who is naturally repressed is without doubt more difficult to train than the one whose temperament is open and frank. It is less easy to understand and is usually more resentful of interference, and for this latter reason punishment not infrequently does more harm than good unless it is carried out with great circumspection. On the other hand such a child may develop into a fine character if training has been judicious, for it is often capable of much reasoning power and its intelligence may be above its years. When and in what way to punish the child become problems of increasing perplexity as more is known of the working of mind. The crude rule-of-thumb methods of the past must be more and more challenged. We now know that in apparently correcting a fault we may damage the mental development of the child unless we keep this actively in mind when meting out the sentence. Take, for example, the matter of corporal punishment—in referring to this I do not wish to be misunderstood; I am not one of those who believe that all punishment is wrong, for whilst human nature is what it is punishment in some form or other will be necessary—my criticism is that it is too often administered according to tradition and custom rather than by the exercise of a wise judgment. For example, it is difficult to understand how caning and corporal punishment are so commonly left in the hands of prefects, whose knowledge of mind development must be non-existent, and this being the case it is the crime that is punished and not the author of it, and the effect that it may have upon the latter is left on the lap of the gods. I have known of a young boy caned by prefects several times in his first term for minor offences until finally he ran away in a high state of nervous excitement, and this at one of our best public schools. Such treatment may claim to make some boys into fine men, but undoubtedly it also causes some to become nervous wrecks, and I cannot help feeling that it ought not to surpass the wit of man to evolve some scheme of punishment which should have all the benefits of the present system and less of the disadvantages. Government by prefects has, when properly carried out, a highly beneficial effect upon a school, but duties should not be imposed upon them which are clearly beyond their powers of full appreciation. Dr. Herbert Gray, in writing on corporal punishment, says that he has "no hesitation in maintaining that it should be confined, when administered at all, to offences of a moral or quasi-moral character, such as lying, cheating, evil language, and misconduct of similar type." Now that it is known how damaging is emotional shock to some individuals—and this must be more likely to occur in a child—it behoves those in authority to re-survey the grounds for and the methods of administration of corporal punishment from the psychological standpoint.

I am not aware to what extent the writing of "lines" is still practised in schools, but it is a form of punishment to which there are serious objections. To write out hundreds of "lines" is to fatigue the hand centre in addition to other parts of the nervous system, and when it is imposed for "inattention" which may be due to brain-fag, the result is obvious. Speed alone in a mental exercise is exceptionally fatiguing, and what boy does not write his "lines" with the greatest despatch at his command, and what master does not know this, for does he not intend to keep the boy at it for a definite time, and to do this he must be guided by possible pace rather than by slowness? I know that many school authorities are taking a more scientific out-look in the treatment of delinquents, but much has yet to be done, for traditions die hard, and it is apt to be said that "what was good enough for us is good enough for the boys of to-day."

There is another type of child to which I might refer, not because of the frequency with which it is met, but rather on account of the very damaging effect it usually has upon its fellows. Fearlessness is an attribute which rightly holds a high place in character, but like all virtues it may lose its value unless it is tempered by judgment. To train a child to be fearless unless at the same time it is acquiring experience is to court very definite danger. The fearless child becomes independent above its years, and with independence it may develop a dictatorial and bullying spirit. Many of these children when puberty is over pay less and less heed to authority and become quite insensible to kindness or severity, and not a few fall into the hands of the police for breaking the law. This all goes to prove that mind development should be a homogeneous whole, and although interest and aptitude may tend to quicken growth in certain directions, these tendencies must be watched and kept within reasonable limits.

During recent years much has been written regarding phantasy—not that it was a fresh discovery, but on account of its place in the new psychology. Now make-believe is a normal characteristic in all young children, but some have it much more fully developed than others, and these are usually of the sensitive type. As with reality there are two large classes of phantasy: the one includes all that stands for brightness and happiness and the other all that is ugly and forbidding. That the latter should play so formidable a part in the child's story- and picture-book has always been an enigma to me, for to the sensitive child it may do much harm and its power for good must be very small. Nevertheless phantasy is good, as it smooths the path of the child on its way to the stern realities of life. Whatever its troubles, it can soon forget them in the land of fairies. But as years pass it is necessary for phantasy to be slowly replaced by realities,

and it is incumbent upon the teacher to prepare the way for this transition. Realities must not be made too hard, otherwise the child is driven back into phantasy, or in silence it may fret until the rising emotion shows itself in varied forms of nervous disturbance, or if it is made of tougher material it may slowly harden into an attitude of careless indifference or open rebellion. One child easily slides over the difficulties which mark the opening years of its life, whereas another requires help, and it is urgent that this help should be given. What I have already described as a wise, philosophic, yet sympathetic understanding is what is called for, and not the enervating "sloppy" sympathy which is apt to be given, interspersed from time to time with an undisciplined display of irritability.

Although phantasy is a marked feature of the mind during early childhood, it may persist or re-appear in the later school days. If so, it will call for inquiry as to why it is there. The adult has his day-dreams, but they ought merely to be an outgrowth of reality—a visualising of some ambition that is as yet far off but the contemplation of which affords encouragement in the present and a vision of hope for the future. On the other hand, phantasy which has no normal relationship to life indicates that an older child has either regressed or that his mind is not developing normally. At this point I may be met by those who believe that "self-expression" in whatever form it may take is the factor of overwhelming importance throughout a child's life, and that what some may regard as phantasy is nothing more than the unfolding of a creative mind, which may easily be stunted by careless handling or failure to appreciate the condition in its true light. I agree, as I suppose most would agree, that self-expression has been sadly neglected in the past and that schools have been conducted to meet the requirements of a standardised child which, to avoid any difficulties in differentiation, has been termed the normal child. Those whose mentality did not permit of their fitting into this charmed circle either risked becoming chronic failures, or, having weathered the contempt to which they may have been exposed in early life, have developed, when once freed from the system, into successful men in whatever sphere of work they may have taken up. But because "self-expression" has been a neglected factor in the past, there is no reason why it should be granted too free a place in the education of the future. Sooner or later the instinctive impulses of the child must meet and, if untrained and unconditioned, must clash with the social *régime*; he is unable to free himself from the herd. What he thinks of others and what they think of him are musings which, if allowed to run riot, may entail his downfall, but, if rightly directed, may lead to the development of a character where self is almost lost in interest for others. It is this adjusting to the

demands of the herd which is often so difficult, and when one appreciates what it means, the adaptation of an ever-changing being to an equally kaleidoscopic world, it is remarkable that misfits are not more common. But apart from actual misfits we are still far behind in what could be done to make the best of life and to equip the young for the work that they have to do. The normal child is extroverted, and if introversion is noted every care must be taken to develop its ease of expression. It is frequently the sensitive child who is introverted, and he may otherwise be one who is endowed above the usual with powers of perception, and, given suitable care and training, is often capable of fine development. If, on the other hand, by any misfortune it finds itself under the care of unimaginative and commonplace persons, its life will become increasingly cramped by the conflicts within and the cruel pressure from without. Nothing is more tragic than to see the introverted child suffering mental anguish more exquisite than physical pain, and in consequence closing the way to mental development and in many cases all because it is not understood. But a child may be too extroverted, and in this case also its mental future is in jeopardy, but in a different way. Its danger is in the limelight, and in an undue appraisement of its ability. If its fibre is tough it may at first trample its way through or over the herd until it ultimately breaks down, a victim of its own conceit. Nevertheless if the dangers of such a child are appreciated early enough and if it is handled with judgment, it will be found in many ways one who is more easily led than the introverted one; but time is against the teacher, and once puberty is reached the task becomes infinitely more difficult.

As childhood advances all the natural instinctive impulses must become conditioned, and by this we mean that experience must modify them. Impulse is an unconditioned reflex, whereas a volitional act is an action which has been toned by experience to the environment in which we live. The instinctive impulse of a man who is exposed to danger is to run away, but training and experience teach the soldier that this is contrary to the opinion of the herd, and in consequence the fundamental law of self-preservation is conditioned and annulled by the dictates of the social order. Untruthfulness and other moral delinquencies belong to this category, but just as many men who ultimately turn out to be trustworthy soldiers cannot be trained by any intensive system, similarly certain children require long and careful handling. By harshness the normal sensitive child may become confirmed in its lying, for falsehood is a defence of the fearful, and once it is consciously established, it becomes an active detrimental factor in its future mental welfare.

In this way we reach what is and ever must be the goal of all mind-

training—self-discipline. By this I do not mean a mere clicking of heels to authority, right as this may be in its proper place, but true discipline, connoting the right proportional working of all the attributes of mind in an even way. The undisciplined nervous system is one which reacts impulsively and violently on slight provocation. Persons who are undisciplined and querulous not infrequently vent their displeasure in spiteful acts; they are highly unreliable, and yet they may be possessed of a personal charm which throws their defects into singular relief. There is no unhappier state than that of instability when a man finds himself reacting abnormally to thought and environment. Ultimately he finds that there is no place for him in the world, and rationalise as he may that his so-called undisciplined outlook is a proper reaction to an unfriendly community, his own uncontrolled language and actions alienate him from the herd. Many of these individuals end their days in mental hospitals, their nervous system having finally broken down under the strain of contending with men and things, and yet, when carefully analysed from the psychological standpoint, there can be discovered no intrinsic reason why such a state of mental unsoundness should have been brought about, had reasonable care and supervision directed the earlier years of their life. All children are undisciplined, and though the majority acquire controls by the education and training which they receive, some lag behind in gaining them. The child that does not become disciplined at the usual age is often quite intelligent and may even attain to a high standard of knowledge, but when a child shows defects in the matter of control it is necessary to focus the immediate training upon these defects, for knowledge is useless to the possessor of an unbalanced mind; far wiser is it first to obtain stability and then to impart knowledge. The irritable child, like the irritable man, must not be regarded as in good mental health, but the brain of an adult takes longer to damage, and although it is true that each outburst of irritability is gradually undermining the mental power of the man, its effect upon the plastic growing brain of the child is vastly more injurious. Further, the child forms habits with extraordinary ease, and once established they are infinitely difficult to displace. Discipline is not a product of short training, for it is not elemental; its component parts are highly complex, and in consequence its development is slow and subtle, but once established its reward is stability, and it protects its possessor from the effects of undue strain of conflicts within and irritation from without. As we acquire knowledge, thought and acts which at first were accompanied by a feeling of effort grow to be automatic. Right thoughts should become associated with proper actions. Sound experience means that we instinctively do the right thing at the right

moment ; the adult mind should be stored with judgments which have been tested by experience and can be called up more or less automatically when occasion requires it. It is not the knowledge that we have acquired that counts so much as with what other things this knowledge is associated. The knowledge of finance associated with extravagant or penurious thoughts is of ill-value ; cleverness and much learning when associated with conceit are singularly unattractive ; business capacity when associated with an intolerance for others often is a valueless possession. When we come to test a man's endurance or what he has made of his life it is rarely pure learning, it is knowledge added to something else which gives it its value, and it is this "something else" which either makes or mars the history of that life. It is outside the purpose of this lecture to discuss all that goes to make character, but just as the good morale of troops keeps an army in a high state of efficiency, so with the individual it is the fundamentals that count.

It is remarkable what apparently insignificant factors may so increase the burdens of life that, starting as a small nucleus, they may form a centre which in course of years may collect round it other factors, until the cumulative effect is greatly to disturb the mental equilibrium of the individual. What for want of a better term may be called "sloppy-mindedness" is an example of this. Some parents give so little heed to the future welfare of their offspring that they bring them up indifferent to principles and untidy in thought and action. The innate intelligence of the child may permit of its acquiring knowledge maybe above its fellows, and when it starts on its life-work all goes well until responsibilities have to be accepted. It is then that the "sloppy-minded" training begins to tell, for it may and often does so handicap the man's progress that troubles which might easily have been prevented overtake him, and these and the unhappiness which is associated with them become so disturbing as to render him a mentally broken and disappointed man. There is another group of cases which are particularly sad, as it is often the break-up of a life which from the earliest of days has been devoted to close application to work ; this group includes those who have risen from the ranks and who through scholarship or unceasing study have acquired some good position, only to find that their personality is unsuited for the post. The issues of life cannot and must not be lightly faced ; phrases like "equal opportunities for all" have a fascinating sound to the uncritical mind, but if you carry this assumed truth into general practice, your kindly attention will bring about the mental downfall of many of those whom you intended to help. The tendency of the age is to standardise everything, but when this system is carried into the management of human affairs

the results cannot but be disastrous. Although it may be true that men whose mental capacity is nearly equal can be arranged in groups, and although, further, it is true that a certain number may be capable of being transferred from lower to much higher grades, the majority must be content to move within narrow limits. Evolution is at all times slow and to attempt to hasten it is not only unwise but disappointing. The natural laws plough on with an unmerciful regularity, for ever heedless of the ever-changing fashions in the opinions of men. It is proper to see that the want neither of money nor of position should stand in the way of the advancement of those whose natural gifts permit of this, but to regard it as the normal right of the majority is to think a vain thing. I know that my critics will say that this is precisely the difficulty—to know who has natural gifts and how such can be gauged. To these my reply must be that this is the duty of the educationalist, for he must search until he finds some reliable test which shall decide this problem, but to attempt what some would have us do, to give all a standard chance, is too wasteful in practice and too hurtful to those who fail. The problem is full of perplexities, and no doubt there are many who are striving to find the right solution, but unfortunately the claimants who demand to be heard are many, and each regards the proposition with a distinct bias of his own. There is first the parent who sees in his offspring the qualities which, if given opportunity, are pregnant with possibilities; and next the schoolmaster, kindly and hopeful, fully aware of the limitations of his pupil, but always ready to give him the benefit of any doubt. Next in order comes the array of examiners and school inspectors, men whose outlook is largely concerned with a standard of knowledge, the human element only entering into the scheme as a means of expressing that knowledge. Next come the Universities and great seats of learning, whose duty it is to indicate the educational needs of men and to hold out as their highest aim, irrespective of individual characteristics, the attainment of pure scholarship. Finally we come to the Legislature, the mouthpiece of popular opinion, who are willing to fling education into the maelstrom of political notions, careless of the effect so long as it appeals to the masses and in consequence strengthens some party at the polls. If only each claimant would wholeheartedly view the proposition from the standpoint of the child and his future welfare and put away from his mind all other considerations, the problem should be capable of a right solution.

Psychological medicine has been progressing rapidly during recent years, and with this one of the most satisfactory features is that the word "mental" is being used more and more freely with reference to normal individuals. At one time any reference to a mental state had a terrifying effect upon the lay mind, and it is all to the good to

find that the public is learning that mental processes are common to the normal as well as to the abnormal. We now await the time when the Legislature will show its appreciation of the advance that has been made by relaxing the law so that the knowledge that has been acquired may be the more readily used for the benefit of the people. In the meantime we must go on teaching that the mental health of the nation is largely dependent upon a wide-spread knowledge of the requirements for keeping a mind in health. The position is in every way comparable to the problem of attaining a high standard of physical fitness. The onus must ultimately rest with the people; the medical profession can but point the way. If the present writing on the wall is correct, that the early years of life are the important years for determining the stability of the mind of the adult, it behoves us to put this knowledge into practice. The country is learning that the greatest asset to a nation is good health and that a small number of A1 men count for infinitely more than a crowd of the C3 class. To attain this end we must look to education, not merely from the narrower standpoint of learning, but where learning is superimposed upon a stable mind. I would close, as I began, on a note of hopefulness. The criticism that is often made against prophylactic measures is that it is pure hypothesis to say that such and such a condition might have arisen, and that the claims of having prevented it are in consequence mere assumption. We at least shall be free from such uncertainty, for we shall be able to point to fewer and less populated mental hospitals. We know that this result can be attained, even with our present knowledge, and all we ask is that those restrictions which hinder us should be removed, and that the lay public should bear in mind that mental disorder is rarely of sudden development and that much more can be done to prevent it than they at present appreciate. For ourselves, we who work in the sphere of mental medicine must keep widening and ever widening our vision as our knowledge advances. In our struggle to repair disease, we must not lose sight of the other matters which belong to our inheritance, for our work lies in no narrow scope, covering, as it does, all that appertains to the mind of man.

The Use of Analysis in Diagnosis.⁽¹⁾ By T. S. GOOD, O.B.E., M.R.C.S.Eng., L.R.C.P.Lond., Medical Superintendent, Ashurst Hospital, Littlemore, Oxford.

THE subject of my paper to-day is "The Use of Analysis in Diagnosis." As analysis is *ipso facto* the reduction of a composite body to its component parts, it stands to reason that analysis must be used by every medical man in investigating any case. The surgeon looks at and feels the growth, and questions the patient; then from what he has seen, felt and heard he constructs a mental picture as to the nature and site of that growth, and as a result of his analysis decides to operate or not, as he may think fit. The physician and neurologist act in the same way. They are all influenced by what they see, feel, and hear; they are guided by their own and the patient's conscious thoughts and feelings. From this it will be seen that up to quite a recent date the material upon which the physician or surgeon have had to draw has been in the "conscious" only. But nowadays, thanks to the genius and patient work of Freud, a new source of knowledge has been opened to the medical profession by his discovery that the solution of many of the problems which have confronted us in ascertaining the cause of neuroses and psychoses lie deeply buried in the unconscious minds of the patients. By special methods of inquiry these buried factors can be disclosed by being brought into consciousness, and energy which was dammed back in the unconscious released, thus effecting relief and even cure.

Whether we accept the views of Freud completely does not alter the fact that the method of inquiry employed by him, or as modified or added to by others, has been the means whereby many neurotic and psychotic patients have been made whole. Never has this fact been better demonstrated than during and after the war in cases of shell-shock, so-called, and neurasthenia. The fact remains, that however much we quibble as to what constitutes analysis and whether hypo-analysis should be included under this term, patients have been relieved and cured by psycho-therapy. Psycho-analysis is one of the mental instruments used in this therapy.

It is not my intention to enter into a discussion of the various schools of psycho-analysis nor of their differences of opinion, the only point that has any immediate bearing upon the subject of my paper being, that by the method of psycho-analysis, *i.e.*, by following the technique of free association, we are able to diagnose physical conditions which would otherwise escape our notice altogether or

⁽¹⁾ A paper read at the Quarterly Meeting held in London on February 23rd, 1922.

remain only partially understood, for the reason that the key to the solution of the physical mischief lay repressed in the unconscious, and in consequence could not be furnished by the patient in response to the usual methods of examination. I hope to be able to elucidate this point by referring to the notes of two cases originally diagnosed and treated as cases of neurasthenia and hysteria respectively.

The first case is that of a man, H. D.—, æt. 50, who joined the Army in 1914 and was invalided out in 1918, with the diagnosis of neurasthenia. He had been under various forms of treatment for about four years for varying periods, and whilst not actually in hospital he had, with indifferent success, attempted to follow his pre-war occupation of motor-body making and had worked for his old firm. Previous to the war he had had no severe illness. There was nothing abnormal in the family history.

On his first attending the clinic his facial expression showed worry and anxiety, with down-turned angles of mouth, and slightly dilated pupils and detached stare. There was little interest shown; the patient moved sluggishly and dropped rather than sat in the chair that was offered him. Questions were answered at first without emotion and in a rather slow and indifferent way, the patient obviously paying little attention and being almost monosyllabic in his replies. All he complained of was a vague headache, great depression, inability to work, loss of memory, lack of interest in anything, and that he could not think what was the matter with him. On being pressed to say if there was anything else he could tell, he gave the further information that he had been giddy when riding his bicycle to work and had once fallen off; also, as he put it, "felt lost and giddy at times." The headache was described as dull and heavy over the eyes and at the back of head. At the first visit nothing further could be elicited from the patient himself. Physical examination revealed that the right side of face was not so mobile as the left, but the paralysis was very slight, and could only be noticed when carefully looked for; the tongue was protruded straight. Pupils were equal and normal in reactions, no ocular palsies to be detected, fundi normal, as also was vision; reflexes brisk and equal, abdominals present; control of bladder and rectum normal. Lower reflexes were equal and brisk; the only abnormality to be detected was an indefinite plantar reaction on the right, sometimes being extensor, but never definitely flexor. There was no Oppenheimer, left plantar reflex definitely flexor. Sensation was generally normal, as also were co-ordination, muscular sense and tone. All organs appeared to be normal. Pulse 80.

Up to this point, therefore, nothing abnormal was to be detected physically that could account in any way for the man's condition

except the very slight facial paresis and the indefinite plantar on the right side. These two signs alone, though indicative of organic trouble, were not of themselves sufficient for definite diagnosis, but it was clear that the case was not entirely functional in origin.

The man could give no further information except that he could not remember a certain period of his war experiences, and at the first interview the sum total of information at our disposal for diagnostic purposes was (*a*) from the patient's statement—depression, giddiness, dull indefinite headache and some amnesia; (*b*) as a result of examination—slight right facial paresis, tongue not involved, and an indefinite plantar reflex on the same side. At this first interview also the blood was subjected to a Wassermann test, the result being negative.

The second and third interviews with the man only elicited the information that he did not believe doctors could do him any good. He was sick of hospitals. He showed disinclination to talk of the war, except that the war was the cause of his illness, and what he wanted was to get away by himself and be quiet. During this period, a space of three weeks, he was working spasmodically at his trade.

After the third interview his demeanour changed and the patient began to co-operate in his treatment and associate, with the result that his own thoughts and feelings on his illness became clearer. He talked more freely, both of his life previous to the war and also of his war experiences, which appeared to have been much the same as those of others up to a certain point. The only part of his life that he could not account for, however, was a period during a voyage by sea. The associations always led to this point, and gradually his memory was clear up to a certain point and beyond a certain point. He had been in a ship that was torpedoed, but could remember nothing from the time of the torpedo hitting the ship till when he was in hospital. Details became clearer as he showed more interest and co-operation, and eventually he remembered and was able to describe what happened after the torpedo struck the ship. Shortly, the story was this: He was lying in his bunk at the moment of impact. The force of the explosion threw him across the cabin on to the chest of another man in a bunk on the opposite side, and he struck his head a violent blow over the left parietal region against a bulk-head and heard his head crack, feeling at the same time an acute pain. The cabin was full of men at the time and all rushed on deck, the patient among them, he feeling very dizzy, sick, and ill, and, as he said, as if his head would burst. The ship sank rapidly, and he, with others, jumped overboard with his life-belt on and was picked up by a boat and taken to hospital. The whole of this amnesia was removed at one sitting, and at the conclusion the patient showed

great surprise and made this remark, "I don't know why it is, but I feel all right and am glad I can now remember everything." The patient returned again in about a fortnight to the clinic. He stated he was much better in himself and could remember clearly, was more cheerful, had lost the dull headache, but he had a new pain of an acute nature which he had never had before except when he hit the bulkhead of the ship when it was torpedoed. He stated it was the same type of pain in the exact spot and was constant, and had come on soon after he had recovered his memory. It had been present ever since and was very severe. He had tried to work, but after ten days had been obliged to give up. I wish to emphasise this point, that, though the man was now obviously in pain, he still maintained he was better, and that the old depression, vague headache and defective memory did not trouble him. At first sight it did not appear that the recovery of the memory was of much service to the man as he had only exchanged one set of symptoms for another, but the new symptom was a definite localised pain which the man himself could point out; it was located to the exact spot in the skull where it struck the bulkhead. Now, this fresh point gives a new clue, and we have a possible reason to account for the slight right facial paralysis and indefinite plantar: (a) we have discovered that the man struck his skull so violent a blow over the left parietal region that he felt it crack, and that he has pain over this exact spot; (b) on the opposite side there is slight paresis and an indefinite plantar.

The problem now becomes soluble and the diagnosis clearer. There had been injury to left parietal region, probably fracture, and some irritation of the brain. The case was at this point handed over to the surgeons. An operation was performed, a two-inch fracture being discovered at the exact site of the pain, with a bruising of the brain substance.

Three points appear to me of interest:

(1) That, as far as I could ascertain from the papers and history, there had been no suspicion of organic trouble in the past illness. The diagnosis had always been neurasthenia and the symptoms appear to have been those grouped under this very wide term.

(2) The patient himself had to supply the clue, which he was previously unable to do owing to the amnesia.

(3) The symptoms were such that the attention of the observer was directed mainly to the mental side, and they masked the organic symptoms until the mental problem was solved by the recovery of the amnesia, and I might venture to put forward the hypothesis that the attention of the patient was so focussed on his mental feelings (emotions) that the physical sensations were unnoticed till the mental conflict was solved.

It might be argued that the facial paresis and the indefinite plantar should have been enough to have suggested an X-ray, but though apparently from what the patient told us later one medical man had suggested cerebral tumour, no idea had ever been entertained of fracture, even though he had been examined many times.

The man now has recovered his mental poise, though unfortunately the cerebral pain is still present and he has a definite slight hemiplegia since the operation.

The second case is one of a young man, H. W—, *aet.* 25, the only son; said to be bright and intelligent and quite normal before the war. There was nothing abnormal in the family history, and no history of any severe illness previous to the war. The patient joined up in 1914; he was discharged with the diagnosis "hysterical fits" in 1916.

He was brought to the clinic by his mother, who informed us that he had fits; that he had completely altered in disposition, and was at times violent, aggressive, and very irritable. She stated that the fits were of two kinds, both commencing with twitching of the right side of the face, but that sometimes he became rigid, and afterwards was lost and dull with headache; in other fits he threw himself about and afterwards became violent and irritable. The mother was most emphatic in her statements that the fits were of two kinds. She said she brought him to the clinic because they were afraid he might become worse and they would not be able to control him. The patient conversed freely and said he wanted to get well, and that he always knew when the fits were coming on, because the right side of his face twitched. He said he could not remember anything of the fits, showed a certain amount of emotion, and said he could not help having them. Both mother and son seemed to attach much more importance to the irritable fits than to the rigid kind followed by somnolence and headache. He did not want to talk about the war, and also became irritable when pressed to do so. This was practically all the information that could be obtained from the history.

Physical examination revealed very slight difference in the reflexes on the two sides, the right being plus as compared with the left, and the plantar reflex on the right was indefinite. There was also slight muscular weakness on the right side. The differences, however, at this time were so slight that they were simply recorded. The blood examination was negative. This was the extent of the information obtained at the first interview.

At the next attendance he was accompanied by his father, who informed us that the patient had had two fits that week of the second or irritable type, otherwise there was no change. The patient was

induced to talk about the war, and it was then that his memory was found to be very defective for quite long periods. He had apparently no recollection as to why he was sent home or when the fits began. On inquiring where and under what circumstances the last two fits had occurred, the following information was given by the father and corroborated by the son :

The first fit occurred when he was standing on a bridge looking at the river. After the attack, in which he became excited but did not fall, the patient was very irritable and the right side of his face twitched. The second fit occurred when he was near a farm and saw a girl in a blue dress ; this fit occurred two days after the first and was similar in type.

When next I saw the patient he would talk, and was anxious to assist. Associations were tried for on the bridge, the river, the boats, the people, with very little apparent light till he volunteered the statement that the lock was being filled at the time and the man had just let down the sluice gate. The patient here showed a disinclination to continue, and the question was asked whether he heard the noise of the sluice being closed and if the noise reminded him of anything. Upon this he showed agitation and had to be pressed for an answer, and then said it reminded him of the noise of a trench mortar stick flying through the air. He was associated on this and the following memory was regained. He had hated trench mortars more than any other kind of explosive weapon. He had been on a particular part of the front where they were exposed to a great deal of strafing by trench mortars, and on one occasion he had been hit on the head by the stick of one (whether it was really the stick is, I think, not quite certain). At first he insisted that he could remember no more, but later on gradually gave a description of his fear that he was killed, and of how he got back into a more safe position, with his head aching and feeling very sick, ill, and dazed. He gave the site of the blow as a little to the left of the middle line of the skull. The patient then said he could remember no more. He was associated on the second fit. The farm reminded him of a farm in France ; the blue dress, which was described by the patient as bluish grey, reminded him of the colour of the German uniform. The amnesia recovered was that almost immediately after the blow on the head. He had advanced with his platoon on a farm, where a hand-to-hand fight had occurred, in which the patient had nearly been killed by a German corporal. The patient now talked freely about these episodes and gave various small details which cleared up gaps in the two events, *i.e.*, the blow on the head and the attack following on the farm. His parent, who was present at this treatment, remarked that she was glad to know this, as her

son would never tell them at home anything about the war and always became irritable and twitchy if the subject was mentioned. From the date of the recovery of this amnesia the irritability became much less, and the mother informed us that the emotional fits had ceased, but the other kind (the rigid fits) had increased somewhat in frequency. At this time the man had only been seen as an out-patient, therefore the statements of the mother were the only evidence we had as regards the attacks.

At this stage, therefore, we had the following data :

(1) Mother's statements and description of the two kinds of attacks and the further statement that the recovery of the amnesia had been followed by a great improvement in the emotional attacks, but a rather increased frequency in the rigid attacks.

(2) By recovering the amnesia we had acquired the knowledge that the man knew he had been hit on the head and was able to point to the exact spot.

(3) The typical examination had already indicated slight disturbance in the reflexes, and muscular power of the side opposite to the blow. It is interesting that after the recovery of the amnesia the physical signs were more marked.

The weakness on the right side was now explainable, and pointed to some increased intracranial pressure probably due to the blow on the head.

He was admitted as an in-patient on January 8th, 1921, and was kept under observation till April 5th, 1921, when an operation was performed for decompression.

Before the operation and while this man was an in-patient he had numerous epileptiform attacks, always preceded by twitching of the right side of the face. There was, however, no recurrence of the attacks of excitement and irritability. After the operation he only had two epileptiform attacks, and was discharged about three months later. He was brought up in about four weeks' time by the mother, who stated that there had been no attacks since his discharge and that he was now working as a jobbing gardener.

These two cases have points in common :

(1) Both had previously been diagnosed as functional, the slight organic signs either being ignored or perhaps more likely not being considered to have any sufficient bearing on the illnesses.

(2) It was only on recovery of the amnesia in both cases that the clues to the slight organic signs were found. Both men had blows on the head, causing definite intracranial injury, of which neither of them were cognisant, and therefore could not tell others what was the matter as there were amnesias, the result of repressive forces acting through fear.

(3) In both cases the later diagnosis of organic mischief was verified by the operation, and in each case the operation was performed on the area indicated by the patient's own recovered memory.

(4) In both cases the purely psychic manifestations, the depression in the one and the irritability in the other, had greatly improved before the operation.

(5) It is also a noteworthy point how the two patients with injuries of a similar nature react each in a different psychological manner: one becomes depressed (introverted), the other becomes excited (extroverted).

In conclusion, I submit that psycho-analysis was the means whereby the unconscious clue was discovered which enabled a diagnosis of these cases to be made, and if this can be admitted, then psycho-analysis may be of use in diagnosing organic conditions, thus justifying my choice of title for this paper.

The Nature of the Psychopathic Inheritance.⁽¹⁾ By H. R. C.

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FOR nearly all time it has been recognised that heredity plays a prominent part in the production of mental disease. There would appear, however, to be a present-day tendency to minimise its importance as a causative factor; indeed, there are some who go so far as to consider heredity in mental and other diseases to be of negligible value. No doubt the advent of the psychogenic school of thought is responsible to some extent for directing attention away from it into the channels of the subconscious.

In the last available statistics of the public asylums in Ireland, an insane heredity was stated to have been the chief causative factor in about 20 *per cent.* of the cases admitted during the year, although in another 10 *per cent.* it was claimed as being a contributory factor. These figures seem somewhat low in number, and this is not a matter for surprise when one considers the extraordinary skill with which an insane inheritance is liable to be withheld from the history supplied upon admission forms. Long since I have been driven to other sources of information with the result that for some years past I have been able to elicit a family history of mental disease in about 50 *per cent.* of the patients admitted to St. Patrick's Hospital, and among the remainder there were often another 10 to 20 *per cent.* about whom much doubt existed.

⁽¹⁾ A paper read at the Spring Meeting of the Irish Division, held in Dublin on April 6th, 1922.

The effect of a psychopathic inheritance upon the prognosis of a mental attack is not necessarily grave so far as immediate recoverability is concerned, but if one considers its influence upon the life-history of the individual a very different tale must be told. Take any patient with such an inheritance and go through the story of his life. There we can usually find the presence of either one prolonged mental illness, or the repetition of many attacks which have left their mark upon the worldly success of the sufferer, and too often have they been the cause of his complete incapacitation from profitable employment. The amount of damage done to the country by such means is inestimable, and for this reason alone the originating cause of mental disease must command more attention from the State than it receives at present, and at no distant date. From the already mentioned combination of recoverability and recurrence of attacks it is obvious that the true inheritance in mental disease is one of instability. What is it that constitutes the unstable mind so that whenever adverse circumstances come along it is liable to fail?

The object of this paper is to submit that the instability is physical in origin and hypo-thyroidal in nature.

For many years thyroidal medication has been a recognised form of treatment in mental disease. Up to quite a recent time, however, the results of it have been somewhat disappointing. This may have been caused by a varying potency of the preparations that were utilised, but it is probable that the true explanation lies in the mode of treatment employed or the type of patient chosen to receive it.

It was generally advised that a rapidly increasing dosage of the glandular extract should be administered until about sixty grains or more were being given in the day. By this method a physical disturbance, sometimes of an alarming nature, was liable to develop, and the mental symptoms were prone to disappear. Frequently, however, the patients were liable to relapse into their former condition, and, on the whole, one could not consider the method as being quite satisfactory. The production of the physical reaction was not without danger to the patient, and to me it appeared comparable to the production of a reaction in the administration of tuberculin, and, therefore, unscientific according to modern thought.

With regard to the type of case, apart from patients showing definite evidence of myxœdema, and who were, of course, classified as being sufferers from myxœdematous insanity—which was considered rare—it was said that stupor presented one of the more favourable states for success from the treatment. This was somewhat unfortunate, as in this condition one is liable to encounter the entity of dementia præcox—a disease that has a peculiar liability to a progressive degeneration, and one that requires the most persistent treatment, which

could not be carried out by the method of dosage that was advised. On the other hand, some brilliant results of the treatment occurred here and there in several other types of mental illness. The writer's interest in the subject flagged a good deal until the publication of McCarrison's (1) work, when it became apparent that several of the symptoms he described as being hypo-thyroidal were intensely common among the insane. The proper course to pursue seemed to be the treatment of patients presenting these symptoms as being sufferers from a deficiency disease, and, therefore, smaller doses of the gland were administered than had previously been customary with him.

In the course of treating many cases, some of which were most hopeless material to work upon, it became evident that the type of patient in which thyroid extract did good was not confined to any particular entity of mental disease, and that the boundaries in this respect were widely apart. During the treatment of these apparently hypo-thyroidal people, the balance of success seemed to lie with those who had a bad family history—a feature that was in direct contradiction to all other forms of treatment in mental disease. Especially was this point to be noticed in those cases with relatives affected mentally of the same generation as the patient who had been treated. A type of family would appear to exist, some members of which become mentally ill, while others remain well, but each individual member thereof is liable to transmit hypothyroidal characteristics to his descendants.

I have selected a few families to illustrate the effect of treatment. In using the word "family," it is employed in the wider sense of embracing relations, not necessarily confined to one set of parents and their offspring. At first I propose to deal with patients who have been certified.

CLASS A.—*Families which have had two or more members under treatment.*

FAMILY I.

M—, female, æt. 23. Stupor following a maniacal attack. At one time very suicidal. Had been ill for 4½ months. Thyroid for two months—recovered. *Family history:* Was stated to be good, but the patient had one previous attack, and at a later period the following two relatives were admitted to the hospital.

N—, female, æt. 17. Stupor following influenza. She had been mentally ill for two weeks, when thyroid was given for another two weeks, resulting in recovery. *Family history:* She is a sister to M—.

A—, female, æt. 30. Auditory hallucinations following an acute puerperal attack. Mild excitement, stereotyped actions and occasional periods of stupor continued for twelve months, and she appeared to be degenerating into dementia. She received thyroid extract for a further twelve months and recovered. Within a short time of beginning the treatment a noticeable improvement took place in her condition. This patient seemed to be an example of dementia praecox. *Family history:* She is a sister to M— and N—.

It will be admitted that this was a family with a marked tendency

to mental breakdown. Three of them have recovered under treatment by thyroid extract. With regard to A—, who was ill for one year prior to receiving the treatment, it should be mentioned that the true significance of the recovery of her two sisters had not, at the time, been appreciated. Further, her mental state was one of excitement rather than stupor, so she only received the drug after considerable doubts had arisen concerning the outcome of her illness.

Not one of these three sisters presented any gross myxœdematosus symptoms. They were very good looking, and, when in their normal state, vivacity of manner was characteristic of them. A brother was also a patient in the hospital for a short period, but, as there was an alcoholic element in his case, and he rapidly got well, no thyroid was given to him. The father seemed to be of a particularly healthy type ; the mother was quick-brained but obese.

FAMILY 2.

A—, male, æt. 30. Depression. Had been ill for one month. Thyroid for two months—recovered. *Family history*: His father died in depression.

F—, male, æt. 26. Depression. Had been ill for fourteen days. Thyroid for two months—recovered. *Family history*: Patient is a first cousin to A—.

FAMILY 3.

R—, female, æt. 39. Hallucinations and delusions following acute excitement. Had been ill for one year. She then received thyroid for three months and recovered. *Family history*: Three female first cousins, belonging to two families, have at one time or another been insane.

M—, female, æt. 45. Stupor. Had been ill for one and a half years before getting treatment. She is now almost well after three and a half months' treatment. *Family history*: She is a first cousin to R—.

CLASS B.—Where only one member of the psychopathic family has been treated.

1. G. F. M—, male, æt. 38. Depression. Had attempted suicide. Ill for two years prior to treatment. Thyroid for six months—recovered. *Family history*: A sister had a mental attack.

2. K. A—, female, æt. 24. Depression, markedly agitated. Twelve months ill prior to receiving treatment. She received thyroid for one month and recovered. *Family history*: A first cousin was insane.

3. D. C—, male, æt. 43. Depression. Ill for two months before treatment. Thyroid for one month—recovered. *Family history*: His father committed suicide ; a brother was insane.

4. N. S—, female, æt. 30. Acute maniacal excitement. Ill for one week before treatment. Thyroid for ten days—recovered. *Family history*: A brother is insane.

5. M. C—, female, æt. 53. Acute maniacal excitement. Ill for one week before treatment. Thyroid for one week—recovered. *Family history*: A brother was insane.

6. J. F—, male, æt. 19. Delusional state. Hallucinations of hearing. Had been ill for eighteen months. Thyroid for three months—recovered. *Family history*: A first cousin was insane.

7. W. M—, male, æt. 18. Stupor. Had been ill for five months. Thyroid for six weeks—recovered. *Family history*: A first cousin was insane.

8. E. G—, female, æt. 53. Depression. Had been ill for two years. Thyroid for one month—recovered. *Family history*: A sister is depressed. This was a somewhat striking result, in so much as the patient was making very slow progress

when she received the drug. Within one week, however, a marked improvement set in, and the recovery was complete in one month.

9. K. W—, female, æt. 34. Depression. Had attempted to throw herself out of a window. Ill for seven weeks. After a fortnight's treatment with thyroid she lost her delusions and became more cheerful, upon which she was removed from the hospital. *Family history:* A maternal aunt was neurotic. A first cousin was insane.

10. V. A. B—, female, æt. 72. Maniacal excitement. Had been ill one week when thyroid was administered. She became comparatively quiet almost immediately, and has remained so for six weeks. There is, however, some volubility and irrelevance of speech. She is able to read the paper every day, and her state is one that could have been treated in a general hospital. She sleeps the whole night through as a rule. On previous occasions during these attacks, of which there have been many, she has been very confused, noisy, restless and destructive for seven or eight months at a time, notwithstanding treatment with sedatives. There seems reason for belief that, were it not for her advanced age, the present illness would have terminated by now. *Family history:* A sister was insane and a niece was defective.

11. M. M—, female, æt. 30. In a restless emotional state. Had a delusion that she was pregnant, and that she would be hanged. Had outbursts of violence. Made an attempt to drown herself, and also jumped out through a window. Refused all food. Ill for two months. She received thyroid for six weeks, when recovery set in. *Family history:* Her father and sister died insane.

I can give more examples of Class B, but enough has been written to show how responsive many patients with a psychopathic inheritance are to the thyroidal treatment.

The above examples are mainly of the manic-depressive type, which, so far as the individual attack goes, is a recoverable one, but, unfortunately, if untreated, is liable to entail months of acute suffering, which, apparently, can be curtailed greatly in time and nature by the action of thyroid extract.

CLASS C.—*Cases in which the attack has been stopped and certification avoided.*

1. K. M—, female, æt. 38. In a tremulous restless state following shock. She had experienced several attacks of maniacal excitement, and was always aware when an attack was to be expected. On this occasion she had been ill for one week. She received thyroid for three weeks, but after the first week it became obvious that she was safe from a genuine attack. *Family history:* Two first cousins were insane.

This case is of peculiar value to my contention inasmuch as, on a previous occasion, I had attempted to stop an oncoming attack with sedatives. The attempt on that occasion was unsuccessful, and the patient had to be certified.

2. L. W—, female, æt. 33. Depression with marked loss of weight. The attack had been present for some months without the development of delusions, but certain obsessions were a feature of the illness. She received thyroid for one month, after which she declared that she felt perfectly well. *Family history:* Both her mother and her sister had mental attacks.

3. M. R. C—, female, æt. 26. Depression following shock. She was self-accusatory and showed a keen desire for death. She received thyroid treatment for five weeks and then became cheerful. *Family history:* A brother committed suicide. A sister was insane.

Classes B and C agree with A in the almost complete absence of gross physical symptoms of myxoedema. D. C— in Class B showed some thickening of the skin all over the body and his cerebration was slow. N. S— in the same class had some enlargement of her thyroid,

but not to a marked extent. In the case of D. C— his heredity was exceptionally bad and his response to treatment very rapid.

In the matter of proving that a subthyroidal state is the initial cause of dementia præcox, which, of course, constitutes a large proportion of those who remain insane permanently, there is the difficulty of satisfying critics without producing a long list of recoveries. I cannot report such a success, but, at the same time, I am satisfied that treatment with thyroid does good in a number of these cases, and that, in some of them, a remarkable improvement follows.

I have already referred to one case (A—, Class A) which I believe was an example of this entity. The following were diagnosed as further examples :

A. C—, male, æt. 22. Following a brilliant collegiate career he became dull and confused. He was silent for prolonged periods and he refused food. Delusions concerning various portions of his body were present. He also had hallucinations of hearing which gave evidence of exaltation. Stereotyped attitudes and movements were marked and there were several periods of stupor. He had been ill for seven months without showing any improvement. He then received treatment with thyroid for 3½ months and he lost his delusions and hallucinations. He became voluble in speech and unduly cheerful when he was removed home by his relations. I understand that both of these conditions passed away some months later. *Family history*: A sister had a mental attack.

A. B—, female, æt. 25. She had always been of an introspective, reserved disposition, and, in this respect, quite unlike her sisters. She had a period of excitement followed by stupor. She then showed herself in a delusional and hallucinated state. The delusions were of a quaint character and had reference chiefly to her body. She thought that her arms and legs had been removed from her and that she had been buried alive. Indifference, stereotyped attitudes and movements were also a feature of the case. The illness had been present in a marked state for four months when she received thyroid. After a further two months she was remarkably improved, but there was still some evidence of auditory hallucinations. She was, however, removed home as her parents considered her sufficiently recovered to allow this. The hallucinations persisted for some months longer and then disappeared. *Family history*: Her maternal grandmother and a maternal aunt became insane and did not recover.

E. R—, male, æt. 23. The illness started acutely with hallucinations of sight, violent conduct, and wandering habits. Later confusion, silence, slowness of movement and cerebration became evident. He had the habit of blinking his eyelids when he was addressed. If he answered, the reply often came in the form of a repetition of the remark addressed to him. He assumed stereotyped attitudes. Sometimes he gave very absurd answers to even simple questions. He has been ill for thirteen months and on treatment with thyroid for four months. Nearly all his symptoms have disappeared. *Family history*: A sister had a mental attack.

J. M—, male, æt. 25. At first he exhibited negativism. He became silent and resented all attempts at conversation. At intervals he had mildly excited periods of short duration. He evinced little interest in anything and his energy was markedly diminished. Physically he appeared to be in bad health, though no organic changes could be found. His facies was suggestive of tuberculosis. He had been ill for nine months and appeared to be failing both mentally and physically when thyroid was administered. An almost immediate improvement took place in his physical appearance. Later he became talkative and mildly energetic. He has now been taking the drug for five months, and were it not for a want of interest in his work and the absence of desire to go home one could find little wrong with him. The family history in this case is very meagre.

The outlines of these few cases, which had been diagnosed as belonging to the entity of dementia præcox, may help to show that

except where there is distinct evidence of dementia, a reasonable hope of success lies in this form of treatment. In order to obtain good results, the treatment must be given at an early stage of the disease, before marked degenerative changes have taken place in the cortical cells, and the drug must be administered with persistence. To account for the difficulty of success one must dwell a moment on the family history of these people.

If we look over the list of cases which I have described, one cannot but be struck by the fact that in those patients suffering from the manic-depressive psychosis, the insane inheritance is more apt to show itself in an individual of the same generation as the patient who has been treated.

Now, although the cases I record do not demonstrate this point, the family history in dementia *præcox* is more liable to give evidence of mental attacks in relatives belonging to the preceding generation. Sir Frederick Mott (2) has shown that mental disease tends to terminate within three generations, and that the nature of the illness is liable to assume a more gross form with each succeeding generation. This limitation to the life of the inheritance is in striking agreement with the words, "Unto the third and fourth generation," as declared in the Commandment. After this number of generations the stock dies out or there is a change to the normal type—thus fulfilling the law of filial regression. So, when one considers the curability of dementia *præcox*, one is up against an insane inheritance that has probably existed for at least two generations, and if one accepts the hypo-thyroidal hypothesis, it is probable that there has been a deficiency of thyroid secretion in the generation preceding the first insane one, and, therefore, a hypo-thyroidal effect in at least three generations. This is a very important point in the causation of dementia *præcox*.

The pathological findings in the disease have been responsible for certain theories concerning its causation. Sir Frederick Mott (3) holds that it is due to a regressive atrophy of the sex glands, parallel with which certain changes take place in the central nervous system. In his examination of the thyroid gland of patients who had suffered from dementia *præcox* he noted that the weight of the gland was below normal as a rule, but he was not prepared to associate the change in the reproductive organs with any constant microscopic changes in the thyroid. Laura Forster (4), in an examination of the ovaries, has shown that similar degenerative changes exist therein. Matsumoto (5), however, points out that removal, disease or destructive injury of the sex organs in puberty or adolescence are not followed by dementia *præcox*, and he concludes that this disease is a manifestation of a germinal deficiency, and that the neurones undergo a premature decay.

Having regard to the function of thyroid in the matter of the organism's growth, it will not be difficult to appreciate the potential evil effects of several generations of hypo-thyroidism upon the durability of either the sex glands or the neurones when sufficient strain is placed upon them. Kojima (6), while not coming to any definite conclusion concerning causation, has noted, after investigating the weights of the ductless glands in 110 cases, that in certain females in whom the thyroid gland was small the ovaries also were remarkably small. Recently Ford-Robertson (7) has described a number of cases which have responded to immunisation with vaccines, but at the same time he recognises the presence of "an inherent defective resistance to the action of bacterial toxins." He cites the intestine as the habitat of the infecting organisms. In this connection it is my experience that the administration of thyroid has a marked effect upon the nature of the faeces. It is one of the most potent deodorants of the motions that I know of, which I account for by its action in stimulating the various digestive glands to increase their production, and also to the virtue possessed by it of raising the immunity of the tissues.

No matter which of these views one may accept, it will leave the nature of the inborn defect unsolved. It is my belief that these various degenerations and infections occur in an individual who has suffered from a deficient secretion of thyroid.

As additional evidence towards proving the association of mental disease as a whole and hypothyroidism the following points may be noted :

It is known that patients who suffer from goitre are much more liable to mental disease than normal people. On the contrary, Graves's disease would appear to be somewhat rare in the insane, for among some 800 admissions to St. Patrick's Hospital I have never seen a pronounced case of it. There have been many cases that one might be suspicious of in this respect, but there has not been a single one that could be accepted as an example without having some doubt attached to it.

Again, hypothyroidism means not only a small amount of thyroid secretion. Under certain circumstances, which frequently occur, great irregularity of secretion follows. One can conceive the influence of this in the production of stigmata of degeneration which are so intensely common among insane people. The same irregularity may be accountable for the remarkable feature best expressed in Dryden's words :

"Great wits are sure to madness near allied,
And thin partitions do their bounds divide."

Hertoghe (8) has shown that nerve-cells are not destroyed in myxœdematous infiltration, but that they become infiltrated and depressed. May this not be the reason why febrile attacks are liable to produce improvement or recovery in the insane? Fever is known to stimulate both the thyroid and supra-renal glands. These patients would, therefore, be receiving the equivalent of endocrine treatment. Myxœdema is recognised as being of a hereditary nature, which liability is more frequently transmitted through the mother.(9) So far there is not any pathological evidence to show the presence of a hereditary cerebral cause of neuronic degeneration. Further, retardation of metabolism is very often a marked accompaniment of mental disease, especially in its chronic stages; the thyroid is a most potent activator of this process.

There has still to be accounted for a very considerable proportion of people who develop mental disease and yet whose inheritance, under the most strict investigation, will fail to show mental disease within a couple of generations. Sometimes an example of dementia præcox occurs in this manner, and its presence has been explained as being evidence of a "throw-back."

Now, on going through family histories, there are certain diseases that seem unusually common among the insane. They also have the further association of running in families. I have little doubt that these diseases can replace or equalise a psychopathic inheritance, and that, therefore, this psychopathic inheritance is not confined to mental disease alone. It may cover tuberculosis, asthma, alcoholism, gout, some gastro-intestinal affections and malignant disease.

If this supposition should be correct, it would easily account for dementia præcox occurring without any apparent psychopathic inheritance—in other words, the inheritance would appear in the guise of an associated disease. A common time for dementia præcox to make its appearance in a woman is in the period following her first confinement. The same liability has been experienced in the development of tuberculosis.

One of the functions of the thyroid concerns the control of iodine in the body. I need not dwell upon the benefit to be derived from various preparations of this drug in several of the diseases mentioned above, but with regard to one preparation containing iodine, namely, potassium iodide, it has been stated (10) that this drug produces some of its actions by increasing the secretion of thyroid.

It cannot be denied that chronic inflammatory conditions of the gastro-intestinal tract are very liable to be followed by malignant disease of the area affected. Recently (11) it has been declared that in the course of investigation upon the cause of cancer, a certain sero-

logical procedure produced a similar reaction in tuberculosis, some bacterial diseases, and malignant disease.

There would seem to be sufficient evidence to warrant the supposition that hypothyroidism may act in these diseases in the same manner as I believe it to act in the case of mental disease—that is as a predisposing cause which is capable of being transmitted from one generation to another, and which permits the more immediate cause of the particular disease to flourish.

Further, there is some evidence that in acute mental attacks this sub-thyroidal state is followed by a hyper-thyroidal condition, which would point towards an attempt of Nature to throw off a possible infection, and, therefore, to the importance of the thyroid in maintaining immunity to disease.

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Critique of the Theory of "Herd Instinct." (1) By IAN D. SUTTIE, M.B., Ch.B., F.R.F.P.&S.Glasg.

WHEN we speak of a "herd instinct" we mean an innate motive (conscious) or impulse (unconscious) determining social conduct, or at any rate regulating individualistic tendencies in such a way as to make social life possible or necessary. Such a conception is of considerable significance for medicine in its psycho-social applications, and has already attained considerable currency with sponsors of such authority as Sir Clifford Albutt and Sir Frederick Mott, to say nothing of Macdougall and other psychologists who accept this theory. Its relation to the Freudian doctrine of the "censorship" has been pointed out by Trotter himself, and, if established, it would prove

¹ A paper read at the Spring Meeting of the Scottish Division at Glasgow, March 17th, 1922.

no less significant for the theory of hypnotism and suggestion. Indeed, for the future development of any criminology or psycho-pathology that takes account of conative affective endowment and of the influence of social environment, the acceptance of this theory must be crucial.

The criticism and verification of so important a conception is then a matter of the greatest interest. Unfortunately it has proved to be of no less difficulty, on account of the indefiniteness of the theory and of its lack of all positive content. If we attempt to pin it down to any position, to discover its implications, we shall be accused of misrepresentation. In fact, the assumption of a gregarious (herd) instinct is not formulated in any way, so that its logical coherence or consistency with established fact and accepted theory cannot be tested. In these circumstances the liability of the notion to abuse is obvious. The very descriptive aptitude of the term enables it to serve as a cloak for ignorance and slovenly thinking, so that it may actually obstruct research and obscure the issues by giving a false impression that the analysis of motive is complete.

To avoid this the concept must be given a clear and definite meaning, and, since the term "instinct" has been applied to it, we are justified in assuming that all the recognised characteristics of instinct are attributed to it by those responsible for its currency. It is not of course denied that in some form the conception of "associative tendency" may be valid. All that this paper aims to show is that its conception *as an instinct* is unphilosophical, unscientific and unnecessary. To show, then, that the concept of "herd instinct" is invalid, it is merely necessary to demonstrate a difference in kind between the associative tendency and the instincts generally recognised as such. I hope further, by tracing the genesis of this fallacy, to satisfy you that there is no justification for the retention of the notion.

Before proceeding to criticise "herd instinct," it would be as well to emphasise two essential characters of instinct in general, upon which there is general agreement and without which the conception would be empty and worthless :

(1) Instinct is germinally determined and transmitted, is exercised prior to experience, and generally early in life (Shand). Though modifiable, it cannot be acquired, and it differs from "learned" reactions in many important particulars.

(2) When we distinguish specific instincts, we imply that each particular one so named has a relative independence. If regarded as a psycho-physical disposition, it has its special, if subordinate, integration; if regarded as a class of reaction (behaviour), it must be supposed to have some degree of homogeneity, at least of common function. Instincts generally accepted as such mostly have a definite

organic basis. Subjectively they are associated with specific interests or motives. As behaviour, they have an equally specific adaptive function (indeed, I maintain that instincts, appetites, etc., often represent no more than the descriptive concepts resulting from an abstract analysis of functional adaptation). Whether we look at instinct from the point of view of biology (as a type of active functional adaptation to environment), or from that of physiology (as a class of reaction, a reflex integration or an organic system), or from that of psychology (as a group of motives or feelings), we find always the implication of ultimacy, of unity. Even where not explicitly stated, the conception plays the part of a prime factor, and entity, causal or functional, a conative element (in the sense in which chemistry still utilises the conception of its elements as relatively ultimate).

Now, there is no *à priori* reason why a descriptive abstraction arrived at in one field should be the exact correlative of another attained (perhaps by different methods, etc.) in some other field. We see now that there was no justification for Gall's expectation of finding a cerebral centre for "hope," "destructiveness," etc. (application of psychological abstractions in the physiological sphere), yet errors of this sort are rife. Macdougall contemplates leaving the classification of instincts and emotions to the biologists; but if they choose to abstract adaptive behaviour into two (self-preservation and reproduction), or two hundred instincts, will he be equally ready to discriminate discrete psycho-physical dispositions correlative thereto? The physiologists will certainly not allow that the biological unity of the function of self-preservation finds a counterpart in a special organic integration. Appetite has indeed more in common with the sex instinct than with pain, with which it is actually incompatible. The smuggling of conceptions between these three sciences is a dangerous and unscientific game. Though we must assume a correlation possible, and work towards it, we must not assume one ready made for our convenience. Instinct is a term in use in all three with implications in all three, and in my opinion should be used as a sort of vital "*x*." This would, of course, restrict its use to the correlation of these three sciences, since, deprived of any definite fixed connotation in any one of the spheres, the sciences must be independent of this conception and must exclude it from their terminology. A classification of instincts would be a sort of intermediary, subject to continual tentative re-definition, and would not admit of the inclusion of an instinct not represented in all three fields of thought.

I have already mentioned a possible abuse of the conception of a specific instinct, as permitting the "rounding off" of inquiry at any convenient point and conveying an illusory impression of complete knowledge. Obviously the only heuristic justification for

conceiving instinct as ultimate is its use to correlate function, motive and reactive mechanism, and its progressive definition and relation to the more precise conceptions proper to each field of investigation. Unless we limit its (the term "instinct") usage to this fluid tentative meaning we shall wall up the path to knowledge with our own ideas.

As currently employed, "herd" or "gregarious" instinct is little more than a verbal proposition. Social conduct is due to "gregarious instinct." Does this tell us anything about social conduct or help us to discover the motives and mechanisms that determine it? Surely the value of the conception we are criticising is purely descriptive, not suggestive or explanatory. We shall now see that it cannot be imagined, defined, or verified in any of the phenomenal fields to which it is ostensibly applicable.

Physiology, regarding instinct as a chain reflex of an arbitrarily distinguished degree of complexity, has no definite place for this conception in its (physiological) formulæ. Organ-systems, mechanisms more or less integrated, centres for the co-ordination of reflexes, it recognises as forming the structural correlative for many of the propensities, but not for every aspect of behaviour that an analysis of adaptation and conditions of life can discriminate. This structural basis is demonstrable in the case of instincts of sex, parentage, nutrition and locomotion; a bio-chemical integration is made out for fear, rage, etc. Though it will be claimed that the physical basis of herd instinct consists in a complex connection of cerebral paths, it is not unfair to point out that this is conjectural, difficult to imagine, and that, even if we accept its possibility, this circumstance constitutes an important difference between the gregarious impulse and the instincts. We are asked to imagine an instinct without any special organ to originate and transmit stimuli or to discharge its function, or to be the intermediary between the germinal "Anlage" and a psychic function.

In the field of psychology we are invited to recognise the subjective aspect of herd instinct in the form of a craving for companionship. The social sentiments, we are told, develop from this impulse. Variation in sociability without corresponding variation in ethical character presents a difficulty by no means satisfactorily explained. We can hardly imagine the innate basic impulse to vary without causing its derivatives to vary. The theory here presents other difficulties also in the nature, mode and time of acquisition of the social sentiments. They do not appear in children, who are not even sociable. Their development coincides in a noteworthy way with the establishment of the sexual function, and their nature, like that of the conduct they motivate, is complex and highly evolved—the very antithesis of the type of reaction, etc., we are accustomed to call instinctive.

They are acquired, and with difficulty, are variable and easily lost in disease, and they are open to a number of interpretations. Introspective analysis is notoriously inadequate to analyse emotion, and the gregarious instinct has admittedly a peculiarly weak, elusive and indefinite emotional accompaniment. On a psychological basis alone no one could justify this conception.

If "herd instinct" has no definite and accepted meaning in physiology or psychology, it can have no use beyond that of describing behaviour and assisting the interpretation of evolution in terms of survival value. I think it can be shown that it lacks even descriptive validity, inasmuch as it is based on an arbitrary classification, imperfect observation, and several traditional assumptions that are quite fallacious.

I have pointed out elsewhere (*Lancet*, November 19th, 1921, "Significance of Sex for Anthropology," etc.) the majority of animal societies—ant, bee, ruminant, etc., upon whose social behaviour the conception is based—are in reality *families*—sexual units—and that the fact of their cohesion does not imply any bond of union other than that of sex. In the same way *symbioses* and certain other associations indicate that alimentary instincts and fortuitous environmental circumstances may determine the gregarious habit. What, then, constitutes a society? How can we recognise the presence and operation of the gregarious instinct? Upon the possibility of such a definition and criterion depends the justification of the hypothesis of a special gregarious instinct.

Besides this artificial distinction between social and asocial animals, other fallacies are implicit in our traditional point of view, which lead us to regard minds as individual and autonomous, and as composing society and culture by their association and interaction. It is more in conformity with the facts to treat mind as a social product, as the embodiment of cultural contacts, and from this point of view the postulate of an instinctive harmonising control is superfluous.

The introspective method in psychology, theological speculation (e.g., free will) and philosophical idealism culminating in solipsism indicate how, and to what extent, mind has been regarded as individual and autonomous. The first attempt at a comparative psychology (evolutionary) was not the interpretation of higher in terms of simpler behaviour, but the attribution to lower forms of life of qualities of reason, morality, etc., which are merely human ideals. This anthropomorphism may have been due in some measure to the current conception of instinct as the antithesis of reason, and as a mechanism implanted for the fulfilment of Divine purpose. Such an anti-scientific conception, far from aiding in the interpretation of behaviour, had

itself to be combated or given another meaning. As we know, many biologists and psychologists, including Darwin and Romanes, actually came to explain instinct in terms of reason as "lapsed intelligence," though the former, of course, sought here, as always, to reduce teleological to mechanistic explanations by the principle of chance variations (in impulsive endowment). The earlier evolutionary psychologists, however, did not dare, or were unable, to initiate the attempt to explain human in terms of animal behaviour. Interpreting the latter in terms of a psychology false even in regard to civilised man, it is no wonder that these earlier thinkers found that the social integration of minds, and especially of insect minds, was a phenomenon so remarkable as to justify any hypothesis.

The tendency in favour of simpler, more positive and mechanistic explanation (e.g., Lloyd Morgan's special rendering of the "canon of parsimony" and the contentions of the Behaviourist School) no longer permit us to regard such theories as explanations at all. Innate impulse as a function of structure, and hence germinally determined, is now the ultimate principle—the *vera causa*—in terms of which it is our business to formulate behaviour.

We have now, however, fallen into the error of accepting a superficial classification as a true induction. Any activities sufficiently homogeneous and striking are constituted a group and referred to the operation of a unitary motive (as above). Social behaviour is supposed to be determined by "herd instinct." Notwithstanding this radical change in method and terms of interpretation, the underlying fallacy remains the same. We still regard insect co-operation and communal organisation with astonished admiration because we still unconsciously attribute to them our own lazy, selfish, playful, variable, experimentally destructive, etc., etc., etc., nature. It is this attitude to the problem (a relic of our prescientific phase of education and thought), and this preconception of the independence of mind, that causes us to feel that some special explanation is required, that some "agency" must be discovered to account for the fact that ant, bee, and other insect communities do not fall into disorder and dissolve in anarchy.

Imperfect observation and dramatic exaggeration of the harmony of insect societies, the attribution to these creatures of human complexity and variability,⁽²⁾ and of a degree of mental independence and individuality wholly untrue of man himself, invest the phenomena of animal communal life with an atmosphere of wonder and romance. We do not inherit the problem, of course, but we are certainly brought up to it.

The fact is that mind is social in origin and content, and individuality is largely an illusion due to the complex interplay of cultural

influences. It is selected, moulded and developed to cultural or traditional pattern, not constrained or subordinated thereto by a regulating motive. Every step in every possible line of development is a step in social development, and we must not separate in our minds the process of development from the process of socialisation. They are identical, and if we make this arbitrary and abstract distinction, we will have to reunite them, to bridge our artificial chasm by some hypothesis such as that under discussion. *Minds do not co-operate to form culture; they are not the units whose combination forms society, but are formed by society.*

Impulse, however, is not acquired, though affective-conative disposition may to some extent be socially harmonised by habit and organic sympathy. On the other hand, this endowment is relatively simple even in men, and in insects is highly stereotyped. To this extent the possibilities of disharmony are minimised, and when we take into consideration the practical absence of sex-rivalry among insects (where it can appear, it is expressed as frankly and aggressively among social as among asocial animals), we still further reduce the justification for the postulate of an instinctive regulating "agency" with the function of stabilising society.

In man, on the contrary, there is abundant need for an active gregarious instinct. Unlike insect communities his societies do not form mere reproductive units, while the plasticity of his instincts, the complexity of his culture, and innate organisation, give rise to a variability and individuality of disposition which subjects his social organisation to considerable strain. Here, surely, we should be able to find evidence of a gregarious instinct in the form of a "categorical imperative." Subjectively this is nebulous, and we have no certainty of its congenital nature. Objectively we find everywhere formidable organisations based on force: authority and obedience, whose functions are to do what the "gregarious instinct" and its derivatives fail to do, namely, to maintain order, uniformity and social cohesion. Though the interpretation of the customs of government, etc., is debatable, its general bearing is against the hypothesis of a special social instinct. Unless we reduce our conception of herd instinct to so general and a-specific a form that there will be no justification or use in regarding it as an instinct, we cannot explain why training and compulsion should be so conspicuous a feature of human social life.

We have already mentioned the absence of a specific somatic mechanism proper to the gregarious instinct. Structural characters and their functions are, we know, inherited; the generally recognised instincts (nutrition, reproduction, defence, locomotion, etc.) have their own demonstrable organic integration and usually special

receptor-effector mechanisms. It is certainly difficult to imagine the germinal determination of a psychic disposition without any organic correlative. Other difficulties also present themselves when we attempt to think out the implications of the hereditary transmission of "herd instinct." Its manifestation is adult, while the rule (Shand would make it a criterion of instinct) is for instinct to appear early in life—at least in rudimentary and playful forms. Again, we must note that both subjectively and objectively gregariousness appears to be a sentiment. As such, we must hold it to be acquired and even highly evolved within the limits of ontogeny. Finally, if we do not classify animals as social and asocial, we have seen that we cannot radically differentiate social from sexual associations. If, on the other hand, we do make this arbitrary distinction, we must imagine the germinal variations which determine the social habit as occurring convergently in different phyla yet limited to certain species of a genus.

Convergent adaptation has certainly occurred, but the identity is limited to the end-result—the fact of communal life, not its mode or causes. The social habits of ants and men are merely analogous and only in respect to adaptation and survival value. There does not appear to be any real homology, sociological, psychological or physiological. Yet we are asked to believe that this type of behaviour is determined by a specific instinct—a psycho-physical disposition identifiable in different phyla (as subsumed under one conception having a psycho-physical implication). It is difficult enough to conceive a specific (integrated) disposition capable of determining the complex and subtle modifications of behaviour we call social. It is harder still to imagine its germinal determination. I find it incredible that convergent variation should have produced a specific disposition psycho-physiologically identifiable in organisations so diverse as those of man and insect. But if we adopt the current view of the distribution of the gregarious instinct, we must suppose that these variations have occurred frequently, and so late in ontogeny that certain species only out of a genus—(are any genera or larger groups wholly social?)—have been affected, and, of course, independently.

Conclusions.—One of three alternative views of gregarious instinct may be adopted :

(i) That it is really universal, but may lie latent.

This brings it into line with other instincts, gets rid of the difficulty of distinguishing social from asocial animals and of the impossible problem of its origin and distribution. On the other hand, it leaves the theory more speculative than ever, still without any definite psycho-physiological meaning, and aggravates the difficulty of dis-

tinguishing the effects of the social from those of the sexual instinct.

(ii) That it denotes merely a type of behaviour without implying any identity in the psycho-physical mechanisms determining this.

Such a definition is logically unobjectionable, but is not in accordance with current usage of the term "instinct." It further definitely denies the conception of herd instinct any validity for psychology or physiology, sociology or psycho-pathology. Since the causal mechanisms and motives which determine the behaviour may vary indefinitely), all that is common to the instinct as manifested by different species is its adaptive significance (survival value as affecting evolution).

(iii) The conception of "herd instinct" as analogous biologically, physiologically and psychologically to sex, nutrition, etc., with the exception that it is a specific character of limited distribution, is the view here criticised and rejected on the following grounds (it is the current conception, and indeed the only one that could have any real heuristic value, and has been exclusively considered on that account):

(a) The theory of "gregarious instinct" is formulated to solve a problem that is factitious and illusory. It rests upon a false conception of mind as individual and autonomous and the anthropomorphic interpretation of animal behaviour in terms of that misconception. It has other disreputable metaphysical antecedents and relationships. It necessitates an arbitrary classification of animals as social and asocial without regard to the fact that most infra-human associations are reproductive units, and hence not essentially different from the families classed as asocial. It ignores the facts of the conative simplicity and stereotypy of insects, that their solidarity and specialisation is organic, therefore mechanically determined by the nature of the other instincts, not by a special regulative instinct; that their harmony, so far as it extends, is really a unison. Human beings betray their lack of innate adaptation to social life by the universal and conspicuous phenomena of coercion and authority—a social and not an internal, individual control.

(b) There is no structural integration of the "gregarious instinct," unlike instincts proper. (The increase of the social sentiments at puberty suggests an association with sex.) On this account both its germinal determination and subjective representation are much more difficult to understand.

(c) Subjectively the mere impulse to associate is not constant or definite enough to be indisputably distinguished from a possible sexual derivative or component. The social sentiments, which are all that can be verified on introspection, are, like all their class, the very antithesis of instincts, the most elaborate acquired reactions

(orientations of emotional reaction) we know of. This is supported by the facts of child psychology.

(d) We cannot account biologically for the distribution of the instinct (*sic!*) determining the social habit.

Philosophically, the presuppositions and methods upon which this postulate was erected will not bear examination. Psychologically, biologically and physiologically, it has the slightest foundations, and raises difficulties vastly more formidable than those it solves. In every respect it is so indefinite, so lacking in positive content, that it serves more readily the purpose of disguising ignorance and evading difficulties than of increasing our grasp of the complexities of reality. I suggest that its use has that tendency and no substantial justification.

(*) Their *organic* specialisation is overlooked or even attributed to their social habits.

The Medical Examination of Delinquents.⁽¹⁾ By M. HAMBLIN SMITH, M.A.Camb., M.D.Durh., Medical Officer, H.M. Prison, Birmingham.

At the Annual Meeting in July, 1921, it was my intention to have amplified in a modest way our President's address, in which he dealt with the desirability of greater union between the various services which touch upon the "mental" side of medicine. I propose now to offer some remarks on this question as it affects the prison service, and it seems a necessary preliminary to say something about the position of the prison medical officer.

It is curious to-day to read John Howard's book on prisons as he found them in the eighteenth century. The medical side was then, practically, non-existent. Many of the prisons had a surgeon attached to them. But he seems only to have come in when his services were specially required. In some cases he is noted as receiving a salary which looks to us almost ludicrously small, often being £5 or £10 annually. In other cases the quaint remark occurs, "No salary; he makes a bill." It is not quite clear to whom this bill was "made." Probably, in many cases, it was to the prisoner. It may be taken for granted that the arrangements for our particular specialty were even worse, if that be possible, in prisons than in the outside world.

I need not say that all this is now quite a thing of the past. And for many years every prison has had a regular medical officer as part of its establishment. His duties and functions have, however, undergone remarkable developments. In the first instance, it would seem

⁽¹⁾ A paper read at the Quarterly Meeting held in London, November 22nd, 1921.

likely that his duties consisted mainly or entirely in the treatment of prisoners who were physically ill. This most necessary work still, of course, continues. Our prison hospitals are, so far as my experience in the larger prisons goes, well built and well equipped. Many improvements in these buildings have been made during the past twenty years. The nursing staff also has altered—much for the better. And, on this side of his work the medical officer should find plenty of interest. A constant stream of diseased conditions of every kind passes through his hands. And, especially in a convict station, he will find most interesting opportunities of observing the effect of diet and work on persons who are for long periods under his direct view, and whose conditions are fixed. He has also the chance of watching the gradual development, in either direction, of various forms of disease. But this work has even a greater interest than that of the physical side. For we are beginning to see how various physical ailments conduce to delinquency. They can, of course, only do this in so far as they affect the mental life. And there are several ways in which this may come about.

(1) A man who suffers from a severe physical defect—hernia, tuberculosis, defective vision, etc.—is, to some extent, predisposed to delinquency, inasmuch as he is handicapped in earning his living in the ordinary labour market. We may hope that the future will see a great development in the direction of the cure of herniæ by a radical operation, and the correction of defects of vision by glasses, to take only two obvious instances. Much is being done, also, in the way of the treatment of venereal diseases by the latest methods.

(2) All who have studied the question must see that early formation of good habits of industry, etc., is of the first importance as a preventive of delinquency. Now the physically defective man or woman is handicapped in this direction. The phthisical or cardiac case is unable to work regularly. The physically weak child is often kept away from school. Bad habits are thus formed early. Further, these cases naturally receive an extra amount of sympathy from their relatives, and they come to expect this. There is thus produced a decided predisposition to neurotic troubles, and to delinquency also.

(3) Again, take the case of a boy with very defective vision. The defect may not be known to anyone. But the boy will not be able to do his work at school. Consequently he may be in constant trouble with his teachers, and he may be rebuked and punished for carelessness, inattention, and stupidity. Ignorant of the real cause of his trouble, and conscious that he has been doing his best, a mental conflict may be the result, and this may ultimately issue in the form of delinquency. With the system of school medical inspection in our large cities such cases are now discovered and treated. But it is likely

that a delinquent career in many older offenders has been started in just this way.

(4) Once more, certain physical disabilities act in another way. They tend to make their possessor anti-social because they induce the feeling that he is not as other men are. Epilepsy and severe impediments in speech may be specially mentioned in this connection. And instances of a number of other similar cases have come under my notice. The result of the anti-social feeling thus engendered may be delinquency.

But the medical officer's duties soon grew far beyond the limits of the treatment of physical illness. It soon became obvious that it was impossible to exercise a rigid uniformity for all offenders in the way of work, of diet, and of punishment for offences against discipline. Wide discretion had to be placed in the medical officer's hands as regards these matters. And, in these respects, it is not easy to see how the powers now vested in him could be usefully increased. The sanitary arrangements also came, naturally, within his scope. And, having regard to certain difficulties under which we have to work, and which are perhaps inherent in the nature of the case, I do not think that our present conditions, in this respect, leave much to be desired. But I have said enough to indicate the importance of physical conditions, and we take more interest here in the "mental" side of the work. Here, again, there has been a great development. I suppose that at one time the medical officer's duties in this respect were confined to the certification of cases of legal "insanity." A prisoner was taken to be either insane, within a somewhat rigid legal definition, or to be regarded as quite normal. In this way, however, the ideas held in prisons did not differ materially from those held outside. But, gradually, the conception arose that a man might not be certifiably "insane," and yet that his mental state was such that his treatment as an entirely normal person was evidently absurd and required modification. It also began to be clear that many persons of this type found their way into our prisons, and that their delinquency was largely due to their mental condition. Modifications of disciplinary conditions were made to suit these cases, and they were placed largely under the medical officer's direct charge. The passing of the Mental Deficiency Act of 1913 was, at least partly, caused by the influence of the prison authorities. And much evidence was given from prison sources before the preceding Royal Commission. We are now able to deal with mental defectives, who find their way into prison as convicted persons, by certifying them under the Act. I shall touch later on the question of dealing with such cases of defect before they are sentenced.

But more is being done. The teachings of psychology have, at least,

made one thing clear. We see that conduct is the direct result of mental life. And most important consequences follow from this position. We see now that we cannot divide our delinquents into two classes, one of which contains persons who present mental problems for our solution, while the other consists of persons who are entirely "normal." Every offender presents a problem, and this problem is an individual one. As a result, every offender is worthy of investigation. And to this as our ultimate goal we must look forward. It is really as unreasonable to deal with a delinquent without this full examination as to prescribe for a patient without examination. And to deal with all cases, say of larceny, on the same lines, is as irrational as the old plan by which all patients with a cough were given *mist pro tuss.* But for this universal investigation of offenders the time has not yet come. Possibly public opinion is not yet ready for such a scheme. And we have not got the staff to do the work. Nor could we get the workers, even if the community were willing to pay for them; they do not exist in sufficient numbers. So we have three objects to keep in view: We have to educate the public and the Courts to see the absolute necessity of the work; we have to do as much work on these lines as we have time for ourselves; and we have to train our examiners of the future.

For many years every hour which remained to me after the performance of my routine medical duties has been given to the theoretical consideration and the practical elucidation of the problems connected with the mental aspect of delinquency. It is clear that in so vast a subject—for we are dealing with nothing less than the science of human conduct—no one can do more than follow up one or two lines of work. My chosen lines have been—

(1) The selection and application of a scheme of mental tests. My earlier work, as is the case with most workers in this subject, was done with the Binet scale. But for a number of reasons, to set out which in detail would take me far too long for your patience, I became dissatisfied with this scheme. I feel sure that many of these tests are quite unsuited for our particular purpose. And I am by no means certain as to the propriety of much of the present-day talk about "mental age." After prolonged experimentation with a great number of tests, I have at last evolved a scheme which I believe to be well suited to the purpose, and which I now use for every case which I consider suitable for formal "testing." I propose to deal with this scheme, and with some of the results obtained by its use, in a book on the subject which I hope will be published early next year. But I will say here, that no one who has not tried it can have any idea how much valuable information concerning the mental characteristics which are of importance in the production of delinquency is to be

obtained by the observant use of a good scheme of "tests." I refer to such characteristics as observation, memory, attention, perseverance, control of mental processes, ability to comprehend a situation and to plan a piece of work, ability to profit from errors, susceptibility to the influence of suggestion, and the like.

(2) More recently I have been led to the consideration of the wonderful light which is shed upon the problems of delinquency by the theories of the so-called "new psychology." Whether we are, like myself, humble disciples of Freud, or whether we adopt one of the other hypotheses of the unconscious mind, we shall find that it gives us, not additional information, but an entirely new conception of the problem. The future, in this respect, is very hopeful. For it is certain that our views of delinquency will have to be entirely changed. I do not wish to say that there is always a mental conflict at the root of delinquency. I will not here enter upon that highly controversial topic whether such a conflict is always of a sex character. But this much is certain. There often is a mental conflict, and the discovery of this may alter the whole way in which we regard our offender, and our ideas of his proper treatment. Instance after instance of such conflicts have been found by me in my work. And but for the very limited time which I can give to psycho-analysis (I need not remind you, the large amount of time required is one of the great drawbacks to the extension of this branch of practice) very much more would have been found. We shall yet see a great development in this mode of investigation and treatment of delinquency. And a scheme will have to be carefully devised, by which suitable cases will be placed under the care of official psycho-analysts. Many other conditions—epilepsy, neuroses and psycho-neuroses, various psychopathic conditions, alcoholism in various forms (to mention only a few)—have to be considered in different cases.

Much excellent work is being done at many prisons in England at which one or more whole-time medical officers are employed. And I would not have it thought that I wish for one moment to suggest that Birmingham has the only prison at which such work is attempted. But Birmingham is in one respect, or so I believe, unique in this country. The justices of that great city, being dissatisfied with the former arrangements, applied to the Prison Commissioners to have a medical officer appointed who would take a special interest in this work. As a result I am, in my office, an integral part of the city's scheme for dealing with its delinquents. Constantly consulted by the justices, and, I hope I may say, trusted by them, my position is one of which I am highly proud, and which I would not lightly change. The justices have also appointed Dr. W. A. Potts to act as examiner in cases which it is not desired to send to the remand part of the prison.

Any case in which, either from the nature of the offence, or for any other reason, there appears to the court to be any element of doubt, is referred to Dr. Potts or myself, by far the larger number coming to me. At the prison we have a male and a female remand department, specially fitted up. These departments are quite distinct from the prison proper, and they are arranged and worked as far as possible on what I may term "hospital lines," the idea of prison being kept quite out of sight. My plan is to allow the first few days to pass by with only general conversation with the patient, unless an attempt is to be made to see if analysis is likely to prove useful. Then, towards the end of the remand period, a suitable time can be arranged for a formal examination, with "mental tests" if thought desirable. The patient thus has time to become accustomed to his surroundings and to myself. Any nervousness on his part is overcome. And we try to make him realise that he is regarded, not as an offender, but as a problem which is presented for our solution, and that my only desire is to understand and to help him as far as possible. There is also the advantage that the examination can be fixed when I have proper time to devote to it, for it is supremely necessary that this examination should not be hurried. Much can also be learned from the observations made on the patient by the attendants. All these advantages are only to be had in some form of institution.

Owing to the operation of this scheme it is now very rare to get a mental defective or a psychosis case from the City of Birmingham on conviction. I wish I could say the same for all the courts in my district. Some of the smaller courts do their work in this respect most casually. It is not uncommon for us to receive a convicted case with a note stating that mental examination appears to be desirable! Actually imbeciles have been sent in this way. And when I add that the sentence is sometimes too short to allow of the case being dealt with under the Mental Deficiency Act, the futility of the whole procedure will be apparent. There is no excuse for action of this kind in such a district as Birmingham, and there should be no excuse anywhere. There are many reasons why mental examination before conviction is preferable to such examination after conviction; indeed, in many cases the latter procedure may be quite misleading.

In this connection I would mention that I feel very strongly that the country should be divided into convenient districts, each with a properly equipped prison with a special medical officer in charge, to which all cases requiring mental examination should be sent, irrespective of the particular prison to which the general body of prisoners from any county or district is committed. There are no doubt administrative difficulties, but these can surely be overcome. It is unreasonable, it is not fair to either party, to expect this work, which is highly

specialised and takes much time, to be done by a part-time medical officer, who is usually a busy local practitioner with no special knowledge of mental diseases.

The only alternative plan, so far as I see, is to have travelling mental examiners in each district who can attend where their services may be required. This plan is now being tried in the State of Illinois. It has the advantage of not committing the case to prison. But there is a loss of those other advantages which I have enumerated as arising from having the case under close observation in an institution. Further, it would often imply the examination being conducted in unsuitable surroundings, and at a time when the examiner or the patient was not in the best mood for the purpose.

I should mention that, at the end of the remand period, which is extended if I so desire, I report on the case. I detail my findings, mental and physical, and make suggestions for treatment. The justices then decide, having my report in view, what the disposal of the case shall be. As a result, during the two years I have worked in Birmingham, less than *25 per cent.* of these specially remanded cases have been sentenced to imprisonment. I do not for one moment claim that the remaining *75 per cent.* would have been sentenced to imprisonment but for my report. But I do claim, with some confidence, that a large proportion would have been so dealt with. And this fact represents a large financial saving to the community, to take the question on its lowest grounds, and quite apart from all the other obvious benefits. In fact, it is becoming clear that "uninvestigated" offenders are about the most expensive luxury in which any community can possibly indulge.

Our plans are not yet perfect. I am not wholly satisfied with the way in which cases are selected for this special examination. I hope to see the day when every court will sit with a medical assessor. This plan was suggested in a Bill which was to have been introduced for the improvement of the Probation Act. This, like other useful legislation, has probably been shelved from lack of time.

Now I shall be asked why the local asylum officers cannot do the work in their several districts. I trust that the asylum officers, who, of course, form the great majority of our members, will not be offended when I say that, in my opinion, they are not, at the present time, the ideal people to do this work. Some of my reasons are as follows :

(1) Merely having worked in an asylum, for however long a period, does not, *per se*, qualify a man for work with delinquents. There are special problems connected with this work which many asylum officers have not studied. I have, for instance, found asylum officers who were quite unacquainted with the legal problems involved in cases of insanity for trial at Assizes.

(2) At the present time most asylum officers see only developed cases of insanity. No doubt this will be remedied in the future.

(3) If a patient once gets the idea that an attempt is being made to prove him to be insane or mentally defective, he will resent it, and this may cause the results of the examination to be misleading. It seems to me possible that the presence of an examiner who may be known to be connected with the local asylum is very likely to produce this undesirable result. In this connection I may mention that the title to be given to the examiner is not of unimportance. Such terms as "psychiatrist" or "psychological expert" are somewhat alarming to, and are not fully understood by, the laity. This has been felt so much in America that the title of "mental health officers" has been suggested.

If, however, a closer union between the prison, the asylum service and the service which deals with mental defectives were to be arranged, the situation would be entirely altered. And we might hope to have a unified service, working in each district under a local head (perhaps the superintendent of the asylum), who would be the director, the organiser, and, above all, the inspirer of all the mental work in his district. His fellow-workers would all have been required, as juniors, to have done their turn in each of the three great divisions of our subject. When a man had proved his special competency for one particular branch of the work, he could, of course, be kept at that line.

It seems to me that he who would deal with delinquents requires certain definite qualifications. He requires, of course, an adequate knowledge of general medicine, and to have made a special study of insanity and of mental defect. But, further, it seems that he should have some appreciation of "philosophy." It is not necessary that he should adopt any particular theory of the relations between physical and psychical processes, or of the other great questions of this character. But he cannot comprehend our special problems, which go right to the foundations of human life, without having some knowledge of the various theories which have been held, and without having decided upon that particular theory which most commends itself to his own mind.

We may hope, also, to see the day when special instruction in the various subjects of our study, and of a diploma therein, will be an integral part of our system. It is a matter for congratulation that so many teaching bodies are now taking up this question. The University of Birmingham is holding, next summer, a short post-graduate medical course on the "Medical Aspects of Crime and Punishment." The Prison Commissioners have expressed their full sympathy with this scheme. And I am glad to be able to say that we can make arrangements for members of the class to see the practical work as it is done in Birmingham Prison. And it is hoped that, if this course is

a success, it will lead on to a diploma in the subject. Anything which tends to promote interest in and study of our problems is to be welcomed. There are many controversial questions involved. These will have to be fought, not without dust and heat. But the end will be peace.

And we must not, in this connection, overlook the importance of the school medical officer. His functions also have developed. And he is no longer concerned only with tonsils, adenoids and the like. The psychological aspect of education is of vast importance. The beginnings of delinquency go back to early life—far further back than was, at one time, deemed possible. The real, basic problem of delinquency is not its cure, but its prevention. And surely the places where delinquency can be prevented is in our homes and our schools. The second of these are more under our control than the first. And a really good system of education, in the true sense of the word, would prevent much delinquency in after life. It has often been said that the true function of a teacher is not to attempt to form the pupil's mind upon some predetermined ideal, but rather in accordance with those possibilities and dispositions which he may find to be inherent in the pupil's mind. It is the task of education to ensure that, as far as may be possible, no future harm to society, or to the child itself, shall ensue from the dispositions of the child; that the child's natural tendencies are guided in useful directions; and that there shall be no future need for a process of re-education, which is, in a sense, what psycho-analysis means. In the furtherance of this great ideal the school medical officer is called upon to play an essential part.

I must apologise for having trespassed so long upon your patience, and for having dealt so largely with what may be regarded as matters of administration. Whatever may be the other objects of such a society as ours, its scientific work transcends them all. I should have liked to have dwelt at further length on the scientific aspects of my work. But it seems to me that the time has not yet, perhaps, come for any definite pronouncements. Still, administrative matters are useful, and, indeed, are necessary. And I trust that I may have at least done something towards showing how important is the proper examination of delinquents. I hope that the asylum medical officers or physicians may be disposed to look upon the service which deals directly with delinquency as a sister service, and not so much, as has been the case in the past, as a "sister-in-law." And may a closer union between the asylum, the prison, the mental deficiency and the school services be a step in the direction of what is but the dream of the present, but is the hope of the future—one great, universal, unified medical service.

(For the discussion which followed see pp. 101-4.)

“*Forgetting.*”⁽¹⁾ By C. DAVIES-JONES, M.B., Ch.B.Edin., Ashurst Hospital, Littlemore, Oxford.

I HAVE taken as my title for this short paper the word “*Forgetting.*” But I think it would be well to explain that I do not think it would be satisfactory to attempt to touch upon all forms of forgetting in the time allotted to me. I shall, therefore, not enter at all into the question of the more serious and complete amnesias such as are met with in the practice of psycho-analysis. Such amnesias are brought about by mental traumata, which then result in a dissociation of the painful memory from consciousness. They are more grave in their nature and formation than the cases of “*forgetting*” to which I wish to confine myself.

Prof. Freud, of Vienna, claims that forgetting, whether it be in relation to words or deeds, is not a mere fortuitous occurrence incapable of rational explanation. However trivial it may be, a reason for its production can generally be found by psycho-analytic methods. Sometimes it may be so insignificant as to call for no attention; on the other hand, an apparently trivial amnesia may prove to have in its origin material of great importance. One means of gauging the importance or value of an amnesia is the emotional affect accompanying it. If, in other words, the subject experiences mental pain or distress in connection with the forgetting or the attempt to remember, then we can generally take it that the condition merits investigation.

Numerous instances are forthcoming, I venture to submit, of things forgotten in the every-day lives of all of us. By this I do not refer to those instances where the subject forgotten has failed to make a sufficient impression upon the memory to achieve its retention. Such cases are met with normally in states of preoccupation, and only differ in degree from those found in cases of confusion and states of anxiety. It is rather with the type of forgetting in which the impression has been made but where a bar to its revival has been introduced that I am going to deal.

Sometimes we find ourselves forgetting things we feel that we should not forget, or perhaps we experience that tantalising sensation of having a word on the tip of the tongue. All of these conditions are capable of examination, and to those who wish to take anything of the nature of an active interest in psycho-analysis useful opportunities for exercise in the method are thereby afforded. It is with regard to the forgetting in the psycho-pathology of every-day

⁽¹⁾ A paper read at the Quarterly Meeting held in London, November 22nd, 1921. For discussion *vide* pp. 104-6.

life that I wish to bring to your notice two instances which I hope may prove interesting. Before doing so, I feel that it would be well to outline as briefly as possible one or two details.

This form of forgetting is an active process ; we forget because we do not wish to remember. It would therefore be expected that we should wish to forget what is unpleasant or what clashes with our innate tendencies. This is a broad statement, but it is borne out in practice, though at times the " wish " is somewhat difficult to discover.

In forgetting, an active force is brought to bear—*i.e.*, the unpleasant element is repressed or pushed away into oblivion. Every time that a resuscitation of the painful memory occurs, or is likely to occur, an attempt is made to thwart its expression. Eventually the repression will become a part of the unconscious itself. It will cease to find its outlet by being remembered. Nevertheless it has a latent energy which can never be destroyed. Expression in consciousness will be found in some way or other—most frequently by routes so devious that the patient is unable to discern for himself whence the trouble arises, and yet feels a sense of dissatisfaction frequently amounting to great distress in relation thereto. If we trace back step by step by the psycho-analytic method, one will arrive at this source once more—it can be brought to consciousness, and a new and better adjustment made for the condition causing trouble.

Freud employs the method of free association to achieve this. The person under examination is instructed to say freely whatever comes into his mind without let or hindrance. The analyst will collect this information and prevent the patient from leaving the main channel, etc. In the two instances I now quote I hope you will be able to see more clearly what I have in mind.

In the first instance the name of one's servant is forgotten on every occasion when one has need to use it. The name is discovered to be Dean, and the fact that it has been habitually forgotten is excluded. Free association leads on as follows :

Dean—the Dien in Ich Dien—I serve—to serve the mass at Church—the words the "Sacrifice of the Mass"—something given up or taken away—a loss—the attaché case lost off the Maltese cart at Menin—Dean was responsible for packing the cart, through his negligence the case was lost. Dean did not serve well by losing it—its contents were of great sentimental value to the owner. He must not be reminded of the loss ; he must forget all that reminds him, incidentally Dean.

The second instance is somewhat more intricate.

A friend of mine forgot for two hours how to tie his necktie one morning. At this time he was the transport officer in the battalion and wore a stock. I allowed him to go on talking, and it was as

well that I did, for a curious *lapsus linguæ* helped to connect up his associations later. He said the following :

"After trying I went and had my dinner—I mean breakfast." It was evident that the word "dinner" was what one calls a complex indicator. I inquired whether he slept well or had any dreams. His reply was, "I never dream ; when I go to bed I die till the morning." Then, as an afterthought, "Of course I sleep ; I don't die." This last utterance led me to ask him to associate upon death. He said that death reminded him of his brother's death which had just recently occurred. The news created a very profound impression upon him. He thought of the Christmas and New Year's dinners his family kept during his brother's lifetime ; then of the fact that his family were congratulating themselves by a toast at dinner over the fact that all the boys were safe when the news of the brother's death arrived, changing their joy to sorrow. His brother's kit arrives home in driblets, keeping the wound open. Then in a flash he remembers that on the previous morning he had had half a mind to wear an ordinary stiff khaki collar. He was fitting a tie into it when he noticed his brother's name marked on the collar.

Memories flooded to his mind of the day some time ago when his brother, home on leave with him, was getting rid of collars and gave him these. My friend spoke as follows, showing another *lapsus* :

"He was hunting through his ties and gave me fifteen or more ties, all different shapes and sizes, saying, 'Here, old chap, you can have these ties.'" I then remarked to him, "But wasn't it collars ?" He replied, "Of course—I've got ties on the brain this morning." We then proceeded a little further, and he remembered that he finally decided not to put on the collar because it reminded him of his brother's death.

We are now in a position to sum up.

To wear his brother's collar needs an unusual tie. This means that he must exercise care in tying it. Moreover, to wear the collar recalls his brother's death, which is a painful memory. Next morning he forgets how to tie a tie at all, so that the collar used may not remind him of his sorrow. The effect at repression was unsuccessful, however, as he suffered great distress.

Before I end I ought to say that the analysis brought much more to light out of this apparently trivial matter. The dead brother, for instance, was the youngest—the baby of the family. "He even couldn't tie his tie," said my friend, and, in following this train, we discovered that the wish was not only to forget the death, but to replace the dead brother ; to do so it became necessary to be unable to tie one's tie.

(For the discussion which followed see pp. 104-6.)

Clinical Notes and Cases.

Lilliputian Hallucinations.⁽¹⁾ By Dr. LEROY, of the Maison Blanche, Asile du Département de la Seine. Communicated by G. W. B. JAMES, M.C., M.D.Lond., D.P.M.Lond.

LAST November, while on a visit to Paris, I was kindly received at the Maison Blanche, one of the hospitals of the Département de la Seine, by Dr. Leroy, who showed to me a considerable number of his patients. Some of them raised the subject of hallucinations, and Dr. Leroy demonstrated one case in which the hallucinations were of a somewhat unusual type, and before I left gave me a short article, the substance of which he begged me to communicate to the Medico-Psychological Association. Dr. Leroy is particularly anxious to hear if similar observations have been made by his English colleagues, and I hope to be able to forward to him some remarks from those present at this meeting.

Leroy first called attention to what he terms Lilliputian hallucinations in 1909. Since that date he has made several communications to French medico-psychological societies describing cases in which this type of hallucination has occurred.

The patient sees small figures, men and women, about 20 cm. in height. The figures are almost always dressed in bright colours: for example the breeches of the men are yellow and the coats are red or blue; the women wear brightly coloured shawls. The figures are in some cases accompanied by animals, generally horses, whose size corresponds to that of the other figures. They may occur singly or in small groups, but more commonly in considerable numbers, some patients describing actual orderly processions, marching two by two. The figures appear to talk together, grimace, and even play hide and seek among the articles of furniture in the room. Their reality is a striking feature of the hallucinations; the patient seems to be actually viewing the country of Lilliput, whence Leroy's descriptive title. The duration of the hallucinations varies. Commonly they last half an hour or thereabouts. Leroy cited a case in which the figures appeared daily for over two years. Aural hallucinations do not appear to accompany the visual disturbance.

Leroy has observed that the condition occurs most commonly in patients suffering from alcoholism, drug toxæmias, senile dementia, and, less commonly, general paresis.

In contrast to the alarming nature of most toxic visual hallucinations, with their accompanying psychic state of fear, or at least anxiety,

⁽¹⁾ A paper read at the Spring Meeting of the South-Eastern Division, May 2nd, 1922.

these Lilliputians arouse interest and amusement in the patient, only rarely producing apprehension. The patient is obviously absorbed, laughs from time to time, and will describe the hallucinations to others without hesitation.

Two typical cases follow :

The first, a young alcoholic woman, escaped one evening from the house of her friends in order to visit the curé of the village. On her way she found herself surrounded by a crowd of small persons, gaily dressed, and frolicking along the road and the walls of the houses bordering the road. When she reached the presbytery the figures even attempted to prevent her ringing the bell. This patient was not afraid, and exhibited these hallucinations repeatedly during her illness. The appearance of the Lilliputians followed a period of acute alcoholic delirium in which the typical fearful visual hallucinations had occurred.

The second case described is that of an elderly man, who had an old rheumatic cardiac lesion, and suffered also from albuminuria. This man described a procession of little figures, from 15 to 20 cm. in height, who, dressed in their best clothes, marched in procession through his room, entering by the window and leaving by the wall paper. They generally appeared in the evening, and sometimes at night. The patient was amused by them, laughed at them, and occasionally pursued them with his stick. In the closing months of his life this case developed ideas of reference and exhibited some anxiety about the hallucinations.

Leroy states that similar hallucinations are recorded in *The Life of the Saints*, as occurring to St. Macaire, who lived in the fourth century. This man appears to have mortified himself to excess, so that he was probably suffering from the toxins of starvation.

To summarise, then, Leroy reports the characters of the so-called Lilliputian hallucinations as small, very vivid visual hallucinations, usually of living figures about 20 cm. in height. The figures are gaily coloured, active, may occur singly but more often in large numbers. They are to be observed in toxic states accompanied by mental confusion, and are agreeable to the patient, in striking contrast to the usual terrifying visual hallucinations seen, for example, in alcoholism.

Note.—Members of the Association who have made observations of similar hallucinations are requested to forward them to Dr. James, Moorcroft House, Hillingdon, Middlesex, who undertakes to translate them and forward them to Dr. Leroy.

The Arneth Count in Insanity. By ERIC PONDER, M.B., Ch.B.Edin.
(From the Department of Physiology, University of Edinburgh.)

COOKE (1) has made a study of the changes in the Arneth count met with in tuberculosis, and records the fact that in many diseases of an infective nature there is a "left-hand dislocation" of the count such as is found in tuberculosis. He further records that such a "dislocation" occurs in cases of insanity, and he gives counts derived from cases of locomotor ataxy, general paralysis, epilepsy, imbecility, and senile dementia. The cases considered are only twelve in number.

Cooke remarks that this change in the count in insanity requires further explanation. It appears that the first thing necessary is not explanation, but amplification.

In this paper will be considered the results of Arneth counts made in 417 cases of insanity. These results will be treated statistically. No explanation of the deviations from the normal will be offered.

The method of making the count was that recommended by Cooke ; this method has been found satisfactory, consistent results being obtained after some experience. The blood was drawn from the ear ; the stain used was Giemsa. The count was based on the observation of 100 polymorphs.

Instead of giving, for any case, the Arneth count in full—*i.e.*, the numbers of cells with 1, 2, 3, 4 and 5 lobes to the nucleus respectively—it is convenient, when dealing with large numbers of cases, to express the count as a single number. There are two ways of doing this : one by calculating the "index" of Bushnell and Trucholtz, and the other by using the "phagocytic index" of Hamilton Black (2). The latter index is based on his observation that the phagocytic powers of cells with 1, 2, 3, 4 and more lobes to the nucleus are in the ratios 10 : 18 : 22 : 25 : 25. The "index" is obtained by multiplying the number of cells with a one-lobed nucleus by 10, the number with a two-lobed nucleus by 18, the number with a three-lobed nucleus by 22, and the number with nuclei more complex by 25, the number of cells observed being 100. The normal index may be taken as about 2,000. This index is a function of the count, and its variations may be studied instead of variations in the count itself, thus obviating the difficulty of dealing with the five sets of figures of which the count is composed. Indices obtained in this way will therefore be used in this paper throughout.

The cases studied were 417 cases of insanity, patients in the Monmouthshire County Asylum, Abergavenny. All were males. They are divided as follows :

(1) Into groups depending on the presence or absence of tubercular infection ; and (2) into groups according to the nature of the mental condition.

(1) Since it is very difficult to decide which cases were infected with tuberculosis and which were not, the method adopted was to classify as tubercular all patients suffering from the disease in an active condition, and all who, during their residence in the institution, had been known to show signs or symptoms of the disease. Some of the tubercular group are thus cases of quiescent tuberculosis.

(2) The classification according to mental condition was made according to the system laid down by the Board of Control of England.

The mean of the indices (M) for each group is given, and also the

highest (e_h) and the lowest (e_l) extreme met with in the group. The standard deviation (σ) and the co-efficient of the variation (C) for each group is given. The probable error of the mean (E_n) is $\frac{\sigma \times 0.6745}{\sqrt{n}}$,

when n is the number of cases in the group. The value of $3E_n$ is also expressed for each group, since differences between means, greater than this value, are of significance. It has been thought unnecessary to give the value of E_σ .

The result obtained from the study of the 417 cases is given in Table I.

In Table I the result in normal cases is inserted for comparative purposes, and is based upon Cook's normal cases.

Table II is obtained from Table I, and expresses the means and probable errors in order of magnitude, in tubercular and non-tubercular cases respectively. Table III gives the means, etc., for tubercular and non-tubercular cases, irrespective of mental condition, and shows the effect of the tubercular factor. Table IV gives a comparison between the mean of the non-tubercular melancholic and maniacal cases (*i.e.*, the recent cases), and the mean of the other non-tubercular cases of insanity (the chronic cases).

The tables are largely self-explanatory.

TABLE I.

	<i>n.</i>	$e_h.$	$e_l.$	<i>M.</i>	$\sigma.$	<i>C.</i>	$E_n.$	$3E_n.$
Normal cases = 60.	60	2163	1820	2007	71.25	3.5	6.2	18.6
Congenital cases = 34.								
Not tubercular . .	23	1769	1395	1550	116.1	7.5	16.3	48.9
Tubercular . .	11	1476	1276	1406	60.96	4.3	12.4	37.2
Dementia praecox = 33.								
Not tubercular . .	24	1679	1390	1530	92.51	6.0	12.74	38.22
Tubercular . .	9	1546	1320	1418	72.47	5.1	16.3	48.9
Mania = 10.								
Not tubercular . .	8	1685	1516	1615	66.85	4.1	15.9	47.7
Tubercular . .	2	1657	1372	1464	151.1	10.3	72.17	21.65
Melancholia = 24.								
Not tubercular . .	12	1749	1520	1615	71.31	4.4	13.9	41.7
Tubercular . .	12	1591	1331	1452	85.43	5.8	16.8	50.4
Epilepsy = 32.								
Not tubercular . .	24	1818	1399	1558	94.9	6.0	13.08	39.24
Tubercular . .	8	1404	1319	1354	30.3	2.23	7.2	21.6
General paralysis = 23.								
Not tubercular . .	18	1723	1375	1506	83.43	5.4	13.24	39.72
Tubercular . .	5	1407	1385	1394	7.68	0.55	2.29	6.87
Paranoia = 62.								
Not tubercular . .	46	1770	1352	1563	96.51	6.09	9.57	28.7
Tubercular . .	16	1552	1144	1386	92.76	6.7	15.6	46.8
Dementia = 199.								
Not tubercular . .	155	1794	1250	1513	120.5	7.9	6.53	19.59
Tubercular . .	44	1492	1139	1358	94.95	6.9	9.64	28.92

n. $e_h.$ $e_l.$ *M.* $\sigma.$ *C.* $E_n.$ $3E_n.$

TABLE II.

According to mental condition.	Not tubercular.			Tubercular.		
	M.	E _{n.}	3E _{n.}	M.	E _{n.}	3E _{n.}
Mania . . .	1615	15·9	47·7	1464	72·17	216·5
Melancholia . . .	1615	13·89	41·67	1452	16·8	50·4
Paranoia . . .	1563	9·57	28·71	1380	15·6	46·8
Epilepsy . . .	1558	13·08	39·24	1354	7·2	21·6
Congenital . . .	1550	16·3	48·9	1406	12·4	37·2
Dementia præcox . . .	1530	12·74	38·22	1418	16·3	48·9
Dementia . . .	1513	6·53	19·59	1358	9·64	28·92
General paralysis . . .	1506	13·24	39·72	1394	2·29	6·87

TABLE III.

	Normal.	Not tubercular.	Tubercular.
n . . .	60	310	107
M . . .	2007	1556	1403
σ . . .	17·25	38·85	39·01
E _{n.} . . .	6·2	9·27	9·30
3E _{n.} . . .	18·6	27·81	27·9

TABLE IV.—Non-tubercular cases, 310.

	n.	M.	σ.	E _{n.}	3E _{n.}
All cases except mania and melancholia . . .	290	1530	91·8	3·5	10·5
Manias and melancholias . . .	20	1615	68	14·3	42·9
Difference of means = 85. 3E _{n.} = 53·4.					

To these tables may be added two short tables, conveniently considered separately—a table of the indices of patients who died and who were examined for tubercle *post-mortem*, and a table of indices of patients who were discharged recovered.

TABLE V.—Cases of Death (not included in 417 cases).

Index.	Post-mortem notes.	Mental condition.
1788 . . .	No tubercle found. Aortic disease	Paranoia.
1500 . . .	Tubercular pneumonia . . .	Paranoia.
1400 . . .	No tuberculosis . . .	General paralysis.
1346 . . .	Tubercular pneumonia . . .	Dementia.
1331 . . .	Miliary tuberculosis . . .	Dementia.
1276 . . .	No tubercle . . .	General paralysis.
1252 . . .	Tubercular pneumonia . . .	Dementia.
1168 . . .	Miliary tubercle . . .	Dementia.

TABLE VI.—“Recovery” Cases (not included in 417 cases).

Mental state.	Index on admission.	Index on discharge.	Tubercle.	Notes.
Mania . . .	1440	1899	No	Recovered.
General paralysis . . .	1480	1507	No	Improved.
Epilepsy . . .	1818	1962	No	Improved.
Epilepsy . . .	1523	1716	No	Improved.
Dementia præcox . . .	1332	1526	T.B. hip	Improved.
Melancholia . . .	1444	1742	N	Recovered.

DISCUSSION.

It is obvious that in insanity there is a marked “dislocation of the Arneth count to the left,” the tendency being for the polymorphs to

be possessed of a simple nucleus rather than of one divided into several lobes. The figures given above confirm Cooke's observation. The "dislocation" met with in insanity is not caused by tuberculosis; in cases of mental derangement where no tuberculosis exists, the dislocation is well marked (Table III); if tuberculosis be present the amount of this left-handed dislocation of the count is increased.

When cases of insanity are grouped according to mental condition, the values of the means of the indices of the various groups do not differ greatly except in the case of melancholia and mania—*i.e.*, the "recent" cases—as opposed to those of long standing (Tables II, IV). That the difference between the mean of the non-tubercular maniacal and melancholic cases differs from the mean of the other non-tubercular cases by more than three times the probable error justifies the consideration of maniacal and melancholic cases as a group apart, in which the Arneth count is less dislocated than in other types of insanity.

Table II, column 2, bears this out.

Table V confirms the statement that a dislocation of the Arneth count can exist in insanity in absence of tubercle.

Table VI shows that an improvement of mental condition may be accompanied by a return of the Arneth count towards normal.

CONCLUSIONS.

- (1) In various forms of insanity the Arneth count shows a left-handed dislocation. This dislocation is not due to tuberculosis.
- (2) The dislocation is greater in amount if tuberculosis is co-existent with the insanity.
- (3) Cases of recent mania and recent melancholia show a less marked dislocation of the count than do cases of other forms of insanity.
- (4) Improvement in the mental condition may be accompanied by a change of the Arneth count in the direction of normality.

REFERENCES.

- (1) Cooke, W. E.—*The Arneth Count*, 1914.
- (2) Hamilton Black.—*Brit. Med. Journ.*, January 18th, 1913.

Recent Medico-Legal Cases.

[The Editors request that members will oblige by sending full newspaper reports of all cases of interest as published by the local press at the time of the assizes.]

REX v. RONALD TRUE.

REPORTED BY DR. M. HAMBLIN SMITH.

THE case of *Rex v. Ronald True*, tried at the Central Criminal Court in May, before Mr. Justice McCardie, raised in an acute form

the old dispute as to "criminal responsibility." And the storm of public excitement which it created has directed attention to the position of the medical witnesses in such cases.

True was indicted for the murder of a prostitute, in a flat at Brompton. The woman's death was due to strangulation ; and, in addition, five severe wounds had been inflicted upon her head. The motive suggested by the prosecution was robbery, inasmuch as money and jewelry had been taken from the flat. That the woman was murdered by the prisoner was not seriously disputed. And the sole point which arose in the case was the question of the prisoner's state of mind.

True, who is thirty years of age, appears to be the son of a wealthy mother. She had always provided him with funds, and there was no evidence that she had ceased to do so. He had been educated at a well-known public school. It was stated that he had always been considered an abnormal boy. After leaving school he farmed in New Zealand. Later he got into the Royal Air Force, and had two bad "crashes." He had become addicted to the use of morphia, and was at one time taking 30 gr. daily. He had been in two nursing homes for the treatment of this habit. And he was convicted and fined in October, 1921, for obtaining morphia by means of forged prescriptions. There was much evidence of the existence of those mental characteristics which are common in morphinism—the boastfulness, the disregard for truth, the invention of sensational stories without any apparent motive, the lack of foresight, etc. And there was also evidence that he had a definite delusion, to the effect that he was impersonated by another man named Ronald True, and that this man was trying to murder him. The prosecution attempted to break down this last piece of evidence by suggesting that it was not to be considered as a genuine delusion, inasmuch as there appears actually to be another man of that name, who is known in some forms of London society. The defence urged that this actual Ronald True was not the man referred to by the prisoner, and that the prisoner's idea on this matter was a genuine delusion. And this latter view was the one taken by the medical witnesses.

The medical evidence called for the defence was exceedingly strong and entirely unanimous. Dr. Norwood East, medical officer of Brixton Prison, had True under observation for about two months from March 8th, which date was only two days after the murder. He formed the opinion that True's idea as to impersonation was a genuine delusion and he was prepared to certify him as insane. Dr. Young, also of Brixton Prison, gave evidence to the same effect. Dr. R. Percy Smith had examined the prisoner, regarded him as insane, and was quite prepared to certify him as such. Dr. W. H. B.

Stoddart had also examined the prisoner, and had formed the same opinion. It may be remarked that no medical evidence to rebut that brought by the defence was called by the prosecution, presumably because they were unable to find any. Some interesting evidence as to True's conversation and conduct while under observation in the prison was given by a hospital attendant.

Something was made by the prosecution of the fact that True had attempted to cover the traces of his crime. To some extent he appears to have done so, although that would not disprove insanity. But there was also evidence that he went to the shop of a tradesman to whom he was known, on the day of the murder, and had bought a suit of clothes, exhibiting fresh blood-stains on his trousers, which stains he accounted for by a most improbable tale. At the same time he showed some of the jewelry which had been taken from the dead woman's flat.

The usual discussion as to the meaning of the McNaughten criteria took place, especially as to the precise connotation of the words "nature and quality of the act" and the word "wrong." It appears to be agreed that this latter word connotes "morally wrong"—that is to say, an act which would be generally reprobated by society. And this seems to be the only tenable view of "morality," unless we are prepared to postulate the existence of a special "moral sense." There was, however, nothing in the published reports which threw any new light on the other questions involved, or as to how an accused person's "knowledge" of the "nature and quality," etc., is to be determined.

During the legal arguments at the trial the case of Bellingham was mentioned, and it seems as if this case has still to be considered. Bellingham was tried in 1812 for the murder of Mr. Percival. And Chief Justice Mansfield, who tried the case, laid down that what had to be proved, to establish a defence of insanity, was that, at the time of doing the act, the accused man did not know that the act was "a crime against the laws of God and Nature." He does not appear to have enlightened us as to what these laws of Nature are, or how murder could be a crime against them. And the other part of his ruling would seem to exonerate a man who was able to satisfy the court that he did not believe in God. If we are to go back to this case, there seems no reason why we should stop there. And we could return to the rule laid down by Mr. Justice Tracey (*Rex v. Arnold*, 1723). And to judge from certain letters in the public press, this is what some persons think we should do. For it has been suggested that the proper test of "responsibility" is whether the accused man would have committed the crime had a policeman been standing at his elbow.

All the four medical witnesses stated that, at the time when they saw him, they were prepared to certify True as insane. And this test of certifiability seems to be the really reasonable one. The idea which underlies the process of certification is that, for the safety and well-being of society, a certain man should be placed under care, control, and treatment. If a man's mental state is such that he needs the adoption of these measures, then it would seem clear that he cannot be held "responsible," in the sense of being liable to punishment for his antisocial acts. Conversely, if a man is not a fit subject for certification, then he may be held socially responsible. The test is a practical one, and avoids all discussion of the really insoluble problems as to what the man "knew." And it is the test which is adopted not only in non-criminal cases, but in the case of criminal offences of a lesser kind. It is unfortunate, though, perhaps, unavoidable, that these legal discussions nearly always take place in cases of murder. In the smaller offences, even those tried at assizes or quarter sessions, all this trouble never arises. And in police court work many cases never get further than the first remand: the man is found to be insane, is removed to an asylum, and the case goes no further. The test of certifiability might, of course, fail in the exceptional case of a man who committed a crime, and was not arrested and brought under observation until some time later, when he might have completely or partially recovered from his insanity.

Something was made at the trial, and much has been made since, of the fact that no steps had been taken to have True placed under restraint until the commission of the murder. There is nothing unprecedented in this. And it is difficult to see how it can ever be entirely obviated under any conceivable system. Many a man has gone about with his insanity unsuspected or ignored until he has committed some crime. But, in this particular case, it is only fair to say that True's wife appeared to have been contemplating the step of having him placed under restraint. And it is quite likely that, had a full examination been made into True's mental state at the time when he was convicted for obtaining morphia by forged prescriptions, his insanity would have been discovered and dealt with. This is simply another argument, were any such argument really needed, for the closer investigation of persons coming before any of our courts. Deliberation and cunning are not necessarily disproofs of insanity. And it is interesting to observe that these points were just those which were raised in the public discussion at the time of McNaughten (see *Queen Victoria's Letters*, vol. i). That many of the patients appear to be quite sane is a remark often made by lay visitors to our mental hospitals.

The judge, in his summing up, stated that he intended to go some-

what further than the criteria in the McNaughten case. He left to the jury the classical questions given in the judges' answers. He further told them that if they found that the prisoner while in an epileptic seizure murdered the woman, they should find him " guilty but insane." Whether this really goes further than the McNaughten case will depend upon whether we read the questions put to the judges by the House of Lords, together with the answers thereto. If the questions are read into the answers, then a crime committed during an epileptic state would, probably, not come within the McNaughten criteria. For the questions referred to crimes committed by persons suffering from insane delusions. But if the judges' answers are read alone, there is no doubt at all that crimes committed in an epileptic equivalent or a post-epileptic state would fall within the McNaughten ruling. Probably epilepsy was suggested by the defence as an attempt to bring the case definitely within the McNaughten ruling. There was very little in the published evidence which indicated epilepsy, and the results of Dr. East's observations were quite against this supposition.

The judge further instructed the jury that even if the prisoner knew the physical nature of the act, and knew that it was morally wrong and punishable by law, and yet was, from mental disease, deprived of the power to control his actions, then the verdict should be " guilty but insane." Whether this is an extension of the McNaughten ruling is a question for legal authorities to decide. Mr. Justice Stephen would appear to be uncertain on this point. See his statement as to what the law is (not what the law should be) in his *History of the Criminal Law*, quoted and discussed at length in Mercier's *Criminal Responsibility*. But even if it is an extension, the proposed criterion is, from a scientific point of view, quite as objectionable as the old tests, and its application would give rise to quite as many acrimonious disputes.

Ultimately the jury found True guilty. That they were legally entitled to reject, as they did, all the medical evidence seems certain. The ultimate decision as to the bearing of the evidence lies with the jury. Whether they would have as readily rejected similar weighty and uncontradicted evidence in a case of " physical " illness is a matter about which we may have our doubts. But it has been said that every layman considers himself a competent judge in matters of insanity.

The case, of course, went to the Court of Criminal Appeal, and Sir Curtis Bennett strongly urged that the jury were not entitled to reject the medical evidence. But the court refused to accept this view, and the appeal was dismissed. The court did not give any decision on the question of the power of controlling actions, on the

ground that, the jury having rejected that alternative, the question did not arise in this case.

The next step was the appointment, by the Secretary of State, of a special commission, consisting of Dr. S. R. Dyer, Sir John Baker and Sir Maurice Craig to examine True. There is nothing at all unusual in this procedure, which is definitely laid down in the Criminal Lunatics Act, 1884, Sect. 2 (4). And such action on the part of the Secretary of State was foreshadowed, both by Mr. Justice McCardie, and by the Lord Chief Justice, who presided at the appeal. The members of the commission unanimously reported that they considered True to be insane. True was reprieved by the Secretary of State and removed to Broadmoor. It has been urged that the Secretary of State was not legally obliged to act upon the findings of the commission which he had appointed. It may be that he is not absolutely obliged so to do. But this would leave us, practically, in the peculiar position that a man convicted (say) of larceny, and sentenced (say) to three months' imprisonment, and who is, in prison, found to be insane, is not to serve out his sentence, but is at once to be removed to an asylum, while a similarly insane man, who happens to be convicted of murder, is to be hanged.

It has been suggested that the finding of the special commission indicates that True was sane at the time of the trial, and had become insane while under sentence. Such an occurrence is, of course, conceivable, although very unlikely. But such a state of affairs is not necessarily to be assumed. The verdict at the trial is concerned with certain legal views as to "knowledge," etc. The members of a special commission are not hampered by any considerations of this kind. Their position is precisely similar to that of physicians called in to inquire into the sanity of a man not under sentence, or of a man convicted of some crime other than murder.

Again, it has been urged by a high legal authority that True, having been allowed to plead to the indictment, is necessarily to be considered as having been sane at the time of his trial. This reveals a complete misconception. The questions as to fitness to plead to the indictment will be found fully described in a paper in the volume of this journal for 1916. These questions are concerned with certain special points. A man, a paranoiac for example, might be quite insane, and yet might quite properly be found fit to plead to the indictment.

There was an outbreak of most unedifying excitement after the final decision in this case was announced. The newspapers, with a few honourable exceptions, joined in a chorus of denunciation of the Secretary of State, and of the value of professional evidence in cases of this kind. Such manifestations are of interest to us, for the

psychology of the mass is as important as that of the individual. But we have an even greater reason for interest. The conservative legal mind realises that an attack is being made upon one of its strongholds. When the dust of this particular conflict has settled down, it will be seen that the whole trend of educated opinion at the present day is towards having, not less, but far more stress laid upon the psychological examination of offenders. The legal mind is always anxious to frame and apply a strict "tariff for crime." But thoughtful people are beginning to see that merely to name the offence does not in any way characterize the offender or suggest the appropriate treatment. The ultimate decision must, of course, always lie with the administrative authorities. And it has never been seriously proposed that the fate of offenders should be placed in the hands of "specialists from Harley Street," as one judge has seen fit to phrase it.

Attempts were made to divert attention from the real issues by writing about "novel theories of the unconscious mind." It would not appear that considerations of this kind entered into this particular case. But at the same time we must not forget that, whether we adopt the theories of Freud, or some other position, this question of the influence of the unconscious mind will, ultimately, have to be reckoned with. Another point raised was that modern theories reject what is known as "free will," and that they are, consequently, destructive of morality, and subversive of our system of punishment. This is a most unjustifiable attempt to confuse the issue. It is very likely that many modern scientists hold deterministic views. But the strictest determinism is quite compatible with the retention of deterrent punishment. Indeed, it may well be argued that determinism is the only logical basis upon which to found a system of punishment.

One newspaper argued that even if True were insane, it was wrong to keep so "degenerate" a person alive; not apparently reflecting upon what the results would be were this principle to be carried to the limit. There was a reminder of the Geddes "axe" in the complaints made of the expense of keeping inmates in Broadmoor, which establishment was referred to as an "*asylum de luxe*." Objection was even taken to the cost of the special commission. It would be interesting to compare the fees paid to the medical witnesses with those received by counsel in this and similar cases.

In all these discussions it must never be forgotten that prison medical officers have, quite often, quashed, by their evidence in court, pleas of insanity of a quite unjustified nature. And also that juries have, before now, persisted in finding a prisoner insane, in the face of medical evidence to the contrary.

The present excitement will fade away, and saner counsels will again prevail. But the existing position as to the question of "responsibility" is about as unsatisfactory as it well could be. It is likely that the courts may see fit to reconsider their rulings and their procedure. But the time has come for our Association to take up the question once more. Much has happened since the last committee sat on this subject. Even if we find that the whole legal position is so unscientific that we cannot properly take part in it, that finding alone would be worth placing on record. But we need not take so extreme a view as yet. There should be no difficulty in appointing a small committee of men of experience, of knowledge, and yet of what the newspapers call "ordinary common sense." And the report of such a committee, when accepted by the Association, would command great respect. The whole question is admittedly abstruse and complicated. But this furnishes all the greater reason for giving it full and careful consideration.

Occasional Notes.

National Council of Mental Hygiene.

SIR COURTAULD THOMSON, K.B.E., C.B., presided over a very representative gathering of physicians, alienists, neurologists, lawyers, the clergy, lunacy officials, members of various societies interested in the welfare of the mentally afflicted and deficient, and many others in sympathy with any movement which aims at greater efficiency in the care and treatment of the insane, which was held at the house of the Royal Society of Medicine on May 4th to inaugurate the proposed National Council of Mental Hygiene.

It was a successful, almost enthusiastic meeting in spite of the jarring note of the now familiar bilious kind struck by one speaker, which sounded incongruous in such a serious and well-informed assembly, and contrasted strangely with the weighty utterances of other speakers.

Sir Courtauld Thomson proved an able and courteous chairman, who, after announcing that a most sympathetic message had been received from the National Council of Mental Hygiene of America, stated the objects of the proposed National Council in the following words:

"The objects of the National Council were for the benefit of the whole country; all the skill, devotion and energy of the medical profession would be of little avail without the whole-hearted support of the general body of the public. Laymen on the Council might relieve their medical and scientific colleagues of much of the work in

connection with organisation and propaganda. He made an earnest appeal for the support of laymen, to whom the institution of this Council offered an opportunity for co-operating with the medical profession in helping forward the health and mental soundness of the nation."

Sir Humphry Rolleston, the President of the Royal College of Physicians of London, followed, and emphasised the importance of preventive medicine, and the special need for the detection of the early symptoms of functional disorder which preceded any organic change in the body. Mental disorders were not rare, but on the contrary exceedingly common. It was often said that we were all more or less on the way to being mad. There was an important difference to the community between the occurrence of bodily and nervous derangement, for whereas the subject of the former might still be able to take his part in the world's affairs, in the latter case there was much greater incapacity. Hence the importance of preventive measures in the wide domain of nervous and mental disorders. Reference was then made to similar movements in America, Canada and France, and the aims of the National Council of Mental Hygiene given in more detail :

(1) The encouragement, and the correlation and organisation of means of communication between the various societies and associations concerned with mental hygiene.

(2) To join with the other national councils to form an international league, for combined action and the interchange of knowledge.

(3) To study the causation and prevention of mental disturbances, which were extremely common in this and other countries and had been increasing since the beginning of the war; including the study of environment, heredity, and various poisons, such as alcohol and lead, the dangerous trades, and the important subject of syphilis.

(4) To include the subject of mental hygiene permanently in medical education.

(5) To further the establishment in general hospitals of special clinics for the early treatment of mental disorders in such conditions as would remove the public prejudice against the word "mental," which implied that the person was not stable.

(6) To improve the conditions of the treatment of mental disorders particularly in the early stages, when a great deal of good could be done at home by the Institution of social service; and

(7) Judicious propaganda.

Sir Humphry Rolleston's reference to the frequency of functional nervous and mental disorders was very important. We should not be far wrong in stating that in reality general practice consists largely of the treatment of the patient's mind under the cloak of physical

treatment. It is sad to think how ill-equipped therefore young practitioners are on leaving the schools to carry out one of the many tasks which confronts them, *i.e.*, the treatment of the disordered nerves and minds of their patients. How much more efficient the medical service generally would be if medical students were more adequately trained in the theory and practice of psychiatry! The importance of mental hygiene requires bringing home not only to the public but also to the medical profession, and if the National Council of Mental Hygiene is successful in the latter direction only it will confer untold benefit on humanity.

Thus the National Council for Mental Hygiene came into existence with Sir Courtauld Thomson as Chairman, and a Provisional Committee to draw up a constitution and elect an Executive Committee was appointed, to report in six months' time.⁽¹⁾

Professor Sir John Macpherson, C.B., M.D., F.R.C.P.Edin.

WE desire to offer Sir John Macpherson our hearty congratulations on his Knighthood. The King's Birthday Honours, 1922, included no name more worthy of public recognition. His services to Scottish Lunacy have extended over a period of approaching forty years, and he has taken an active part in the great advancement the care and treatment of the insane has made during this time. His contributions to psychiatric literature have been important and he is widely quoted. His ripe experience and learning have also been esteemed in the larger field of sociology. Readers of the Journal will no doubt remember his last brilliant paper in 1920 on "The Identity of the Psychoses and Neuroses."

Sir John Macpherson, after ten years' service as Medical Superintendent of the Stirling District Asylum, Larbert, was appointed in 1899 Medical Commissioner of the General Board of Control for Scotland, from which post he recently retired. On June 6th he was the recipient of a testimonial by his many friends, professional and others, the ceremony taking place in the Hall of the Royal College of Physicians, Edinburgh. As Lord Polworth remarked in making the presentation, Sir John Macpherson "was not retiring into oblivion or idleness on a pension well earned, he was going out to a new country to give that country the benefit of his great experience acquired in the old country."

This was a reference to an announcement recently made in the press that Sir John Macpherson had been offered through the Agent-General for New South Wales, and had accepted for a period of three

⁽¹⁾ *Vide Lancet, British Medical Journal*, May 13th, 1922; *The Times*, May 5th, 1922.

years, the Chair of Professor of Psychiatry in the University of Sydney.

We feel we voice the unanimous wish of our Association that all success will meet his latest endeavour to further the interest of psychiatry as a branch of general medicine of prime importance to the welfare of the community, and their admiration that his zeal and enthusiasm continue at so high a level that he can postpone his retirement and rest from active work which his valuable public services have rendered him so justly entitled to.

Part II.—Reviews.

The Basis of Psychiatry (Psycho-biological Medicine): A Guide to the Study of Mental Disorders for Students and Practitioners. By ALBERT C. BUCKLEY, M.D. Philadelphia and London: J. B. Lippincott Co., 1921. Med. 8vo. Pp. xii + 477. 79 Illustrations. Price 30s. net.

The author dedicates his book to the memory of his father, Dr. William C. Buckley.

We have delayed the writing of this review—in fact, the delay has been unavoidable. A precursory glance at once showed that we were to deal with no mere text-book on mental diseases of the kind we have in recent years become accustomed to, which convey the same information but clothed in different language—sound enough no doubt but wherewithal in essentials the same. Here, however, was an author who would essay a new departure and unfold his subject psycho-biologically, commencing from the basis that acquired mental diseases are reflections of some bodily disorder affecting “the organ of adjustment—the nervous mechanism and its lower and higher (psychic) reflexes”—and preventing appropriate adaptations to environmental conditions. Regard was to be paid the view now being increasingly held that “Psychology is the science of behaviour,” and psychiatry was not to be presented as a strange and novel subject, but approached through paths familiar to the student when studying general medicine.

The book has therefore called for careful reading and study, and we are bound to admit that it has been a refreshing and profitable experience and one we can wholeheartedly recommend to our readers.

Pursuant of his plan, Dr. Buckley deals in the first place with the origin and subsequent evolution of the nervous mechanism. Under “Biological Phenomena,” after explaining how living are distinguished from non-living things by having the attribute of being able to “react” to external influences (reaction), he shows that the simplest organisms are devoid of nerve-elements. He then traces the development and elaboration of the nervous system from its first appearance in Cœlenterates through the successive higher planes of the animal kingdom. He describes the various types of nerve mechanisms as they evolve: first diffuse, then linear, then ganglionic and finally tubular with its cerebral

masses. Following this he shows how the development of new function is correlated with the development of new structure, how the nervous apparatus brings about the adaptation of the organism to environment ; he explains the formation of the functional divisions of the nervous apparatus and the appearance of receptors, conductors, effectors, and the conditioned reflexes, etc.

The second half of this chapter is devoted to heredity. The various laws and conditions governing cell differentiation as taught by Weissman, Mendel, Galton, Pearson, Bateson and others are expounded, with the assistance of many excellent diagrams and photographs, and the subject brought thoroughly up-to-date.

Continuing, the author demonstrates how the highest degree of development and complexity of the nervous mechanism is attained in man and adapted for the purposes of carrying out the many-sided activities of the life of the individual. This involves a consideration of the anatomy and physiology of the brain, of the development of mental functions, and of the psychological processes. This ground is covered in three chapters of absorbing interest. Every subject is evolved from the simple basic facts until the comprehensive whole can be grasped by the student. We are not asked to accept bald statements but given the reasons for their advancement, and all the known evidence is laid bare. The author carries the reader along with him, and the most difficult and obtuse matters thus become intelligible. The reader soon becomes convinced that, though the subject is manifestly difficult, involved, and in some aspects obscure, it is not beyond him and he is encouraged to continue. Throughout Dr. Buckley keeps to his text that mental phenomena are representatives of the biological reaction of the individual as a whole, and that the development of mental activities parallels with that of the physical, and is dependent upon pre-existing fundamental activities in the germ.

The student is now fully equipped for the consideration of morbid mental phenomena—disturbances of the organ of adjustment, causing faulty behaviouristic reactions, etc. Elemental living tissue has become the sentient individual ; the body with its nervous mechanism has been clothed in its psychic personality.

The study of mental disorders is opened in the traditional way ; aetiological factors, exciting causes, classification, general symptomatology and methods of examinations are successively encountered and bring Part I to a termination.

Our author agrees with Tanzi that the best classification is one which has the best working basis—one founded on pathological anatomy as far as possible, with due regard to symptomatology, and grouped to include the greatest number of aetiological factors. However, this is impossible at present, so he adopts, and we think wisely, three main groups : (1) mental disorders with an organic substratum leading to dementia ; (2) one which represents a quantitative disturbance of the normal mental functions ; (3) one characterised by a primary disturbance of the sensory sphere, with mental confusion, and results in qualitative disturbance. These groups and their subdivisions represent "reaction types" of the individual rather than morbid categories.

General symptomatology is treated of under disturbances of (1)

sensation and the process of perception, (2) association processes, (3) the emotions, (4) volition and action.

The methods of examination are stated clearly and concisely, and include laboratory diagnostic methods such as the Wassermann reaction, colloidal gold reaction, determination of blood alkalinity, and urinary acidity.

Part II of the book comprises the clinical psychiatry usually found in the manual or text-book on mental disorders, with the exception that purely agenetic types or defective groups are omitted. Indeed they are now best treated separately as involving many considerations which would encumber a book written like most manuals primarily on acquired mental diseases.

The clinical side of psychiatry is dealt with on well-accepted lines, frequent reference being made to the biological and constructive chapters in Part I, and can be safely recommended to both student, and practitioner. From Dr. Buckley's attitude generally to his subject, one would be led to suspect that he had at one time sat at the feet of Clouston and absorbed some of his philosophy.

The glossary of biological, psychological and psychiatric terms which is appended adds greatly to the reader's convenience; the 79 illustrations are well selected, and the author is to be congratulated on a most useful work, which commands respect and should be widely read.

J. R. LORD.

Nerve Exhaustion. By MAURICE CRAIG, C.B.E., M.D.Cantab., F.R.C.P.Lond. London: J. & A. Churchill, 1922. Demy 8vo. Pp. 148. Price 6s. net.

The first question which occurs to one on reading a book is—"What motive had the author in his mind in writing it?" It is not always obvious, especially when the subject has already been well written about. The apologia of the writer himself in his preface is not always a reliable guide, and may not be borne out by the contents of the book, but in the case of the work before us there can be no doubt. Sir Maurice Craig's speech at the inauguration of the National Council of Mental Hygiene, his recent Maudsley lecture, and the authorship of this book, are all conclusive evidence that the matter nearest his heart is the prophylaxis of mental disorders. Thus in this book stress is everywhere laid upon those earliest departures from normal health and conduct, both in childhood and adult life, which indicate the beginning of nervous exhaustion, and which, if taken in hand at once, prevent the occurrence of functional nervous disease—commonly the precursor of the psychoses.

Marked attention is drawn to what Sir Maurice Craig calls hypersensitivity. This is either physical or psychical, or more frequently both, and may be inherent or acquired. "Hypersensitivity means that the threshold of minimal sensitivity is reached earlier than the normal, and slighter stimuli produce response on both the physical and the mental side."

Causation is dealt with under the headings of inheritance, mental

and physical causes in early life, emotions, work, recreation, worry, sleeplessness, defective circulation, menorrhagia, puerperal period and lactation, alimentary canal, diet, alcohol, body-weight and height, eye strain, endocrine glands, intoxicants, sexual excess, climate, concussion, general accidents, surgical operations—all important considerations. This is the most valuable chapter in the book, and has a direct and practical bearing on prevention. Sir Maurice Craig's conception of nerve exhaustion is something more than mere neurasthenia or functional nervous disease. Thus his symptomatology is widely drawn, and includes, in addition to the latter, the milder forms of the exhaustion psychoses, and, though he does not state it, perhaps the prodromal and early stages of the schizophrenias, paraphrenias and manic-depressive insanity, and even general paralysis. We think there is wisdom in this. The prodromal stages of the psychoses generally have much in common, and if the latter are to be recovered from, it is imperative that they should be given the chance of treatment at the earliest possible moment. Thus the practitioner should be reminded that in recognising the symptoms of nerve exhaustion, especially the early ones, he may be dealing with the incipient stages of grave mental disorder. At the same time, Sir Maurice Craig would have him understand that in many cases the symptoms of the graver forms of the psychoses may be evidence of nerve exhaustion only, and end at that if properly treated. Further, the practitioner cannot be too seriously warned that patients suffering from nerve exhaustion do sometimes become suicidal, homicidal, hallucinated and deluded. Under symptomatology the author deals with disordered function regarding sensation, perception, attention, emotion, association of ideas, movement and will power in relationship to action, impulse, suggestibility, conflict and repression, various physical conditions, etc., as evidence of nervous exhaustion. He not only describes the various symptoms, but is at pains to show how and why.

This latter attitude to his subject he maintains throughout his book. It is a reasoned effort, original, attractive, simple but forcible, and not written above the heads of those whose knowledge of psychophysiology and psycho-pathology is negligible. Indeed, it could be read with advantage by the general public, especially the sections dealing with Freudism and psycho-analysis, and would act as a wholesome corrective to those whose minds are clouded, even deluded, by the indigestion of recent psychological literature.

Sleeplessness and its treatment is considered in a separate chapter, and the concluding chapters are on diagnosis and prognosis and treatment. Throughout the book frequent reference is made to treatment, especially preventative treatment, but in the last chapter it is dealt with comprehensively.

In a work of this kind many points suggest themselves for criticism, but if regard be paid to the diversity of views held on such matters, the book is well within the compass of soundness, and as such can be confidently recommended to our readers. Some useful additions might be carefully made in future editions, such as an amplification of the chapter on diagnosis, especially as regards differential diagnosis, but it would be a pity to overload a work, which is a revelation of

the personal teaching and views held by the author, with technicalities readily found elsewhere, and thus reduce it to a mere textbook or manual, of which there is at present no scarcity.

We had read no book of recent time which has given us greater profit and pleasure, and its appearance could not have been timed at a more opportune moment.

J. R. LORD.

The Psycho-Analytic Study of the Family. By J. C. FLÜGEL, B.A.
The International Psycho-Analytic Press, 1921. Pp. x + 259.
Price 10s. 6d. net.

With the ever-increasing flood of literature dealing with psycho-analytic doctrines, it becomes the more important to differentiate the writings of well-meaning but poorly equipped authors from authoritative productions, of which this volume is an excellent example. Whether or no the *Œdipus complex* is accepted as the central nucleus of all psychoneuroses, no one who has any clinical experience in psychopathology would deny the enormous importance of the various influences, conscious and unconscious, which the family affective relationships have upon the moulding of character and the future mental well-being of the child. William White, of Washington, has happily termed such experiences as "the family romance." Though the various schools of thought differ to some extent in detailed deductions made, all of them are united in viewing the maternal and paternal forces and their surrogates as factors requiring intimate study. How wide-spread these family influences extend will be surprising to those unversed in such matters, and within these pages we can plainly understand how in the past the emotions relating to parents have played such an extensive rôle in all religions and many vital questions involving society and the State. Seeing herein vast moulding forces for good or ill, both individually and socially, it is evident that these become an important study for all those who have to deal with the mental factor either in health or disease. An increased knowledge of the early affective agencies which condition later mental conflict will, we hope and believe, not only give us a greater understanding into the intricacies of the psychoneuroses and psychoses, but will slowly and surely enable us to prevent such states through a more enlightened education in the formative years.

Very modestly Mr. Flügel warns the reader that he gives him little that is original, and, though it is certainly true that the main concepts have already been elsewhere put forward by Freud and his followers, we are much indebted to him for individual extensions of such ideas, and more especially to his biological formulations.

At the commencement we are shown how the primitive emotions centre around the family, and how love, hate and jealousy arise. It is interesting to note that in the child's relations towards its parents, love would seem to be the emotion which is usually first evoked, but that with brothers and sisters hate through envy and jealousy is in most cases the primary reaction. Those primitive tendencies, however, soon become controlled in their unrestricted expression,

and become modified through mental conflict as the moulding forces of education and herd suggestion come into play. Thus by means of repression, displacement and sublimation of the early love and hate, changes are wrought in the emotional attitudes and objects. The Freudian School regard these early conflicts as founded upon incestuous fancies and wishes, and, though the author gives due credit to Jung's view that sexuality does not enter into the family complexes, he cannot but reject the view that parental dependence is only a symbol of the desire to return to the state of protection enjoyed in early years.

In discussing "the family and the growth of individual personality," it is seen that normal psychic development involves a gradually increasing loss of dependence on parental authority. Without this we may trace in later life an undue subservience to the will and opinion of others. Sound moral progress is characterised by an ever-added degree of autonomy, though a too rapid emancipation is apt to lead to a dangerous revolt. A definite distinction is made between the sexual and the dependence aspects, though in real life they are stated to be inextricably interwoven. The various abnormalities and varieties of development which may occur through the exaggerated love, hate, and dependence aspects of the *Œdipus complex* are interestingly reviewed. Thus home-sickness, inability to love freely, psychic impotence or frigidity, homosexuality, Don Juanism, exaggerated love concealing hate, and open hatred, are successively dealt with in relation to the incestuous side. On the dependence side the manifestations are more positive than negative, as there is a lesser liability to repression.

Two somewhat digressional chapters are given on "Ideas of Birth and Pre-natal Life" and "Initiation and Initiation Rites," but the contents plainly show that the aspects of family life which are forcing themselves upon us now are the same as those which have influenced mankind at all times and in all places, and have manifested themselves everywhere in human beliefs and institutions.

Under the heading of "The Development of Parent Substitutes," the various displacements of the original parental love are spoken of, and of particular interest is the displacement towards relatives in law. In psychological terms we see the reasons for the notorious and oft-joked-about special affective relationship existing between son-in-law and mother-in-law.

The development of the love life through family influences is highly instructive, and Mr. Flügel adopts Freud's classification of loves into the narcissistic and dependence types. The first is a result of a projection of the lover's self on to some other person, and in the second—more genuinely object-love—the lover finds something that is essential to the fulfilment of his own bodily or mental needs. Light is here thrown upon such problems as love at first sight, only falling in love with betrothed or married persons, the desire to keep the love secret, the rescue phantasy, a sexual leaning towards prostitutes, masturbation, and the desire for chastity in the loved one.

Questions of great sociological import are dealt with in the chapter on "Family Influences in Social Development." Thus displacement

from the parents may involve a special intolerance of authority, and a very considerable proportion of criminal actions may be traced to such an unconscious source. A displacement to groups, places, societies and institutions may take place, and so home, ancestors, school, college, towns and country can have a peculiar affective value. England is looked upon as a mother country, while Germany is habitually spoken of as the Fatherland. It is seen, too, that there is some distinct correlation between the family and the State organisation. From what has gone before it is an easier step to the subject of displacement to the supernatural, and the family influence in religion is discussed at some length. Totemism, exogamy, ancestor worship, the Devil conception, baptism, sacrifice, and many religious rites are all given their psycho-analytic significance. An exceedingly valuable chapter is that on "The Attitude of Parents to Children." It clearly shows how unwittingly the child's future may be warped by harmful attitudes towards them, which, however, are mainly unconscious in their motivation.

In the latter portion of the book, having completed the descriptive part, Mr. Flügel attempts to correlate the psychological mechanisms he has dilated upon with the relevant facts of anthropology and biology. Since the hate attitude in relation to the family is mainly consequent on love, this latter is the more complex and important. Since an incestuous affection is regarded as the basic factor, the author interestingly discusses what the influences can be which bring this about and what further influences have induced its repression. It is plain that a special attachment should ensue from the long period of infancy and childhood, but to give this an erotic colouring it has to be assumed that (as according to Freud) sexuality shows itself early in partial components, and that the large source of energy which is disposable for development is in a wide sense sexual in nature. Exogamy is looked upon as an institution adopted as a precaution against incest, and, in dealing with the influence of heredity and tradition, it is asserted that "there is in man an hereditary tendency to direct his love and sexual inclination to those who are of his own blood, or at any rate to those with whom he has been brought up and has been familiar since his infancy. . . . The tendency to incest may thus be due ultimately to the action of natural selection." Just as the reasons for the existence of a general sexual repression is a theme which is highly debatable, so the factors relating to incestuous inhibition are considered incomplete and unsatisfactory. The opinions of many authorities are reviewed and criticised. Westermarek's theory that incest barriers arise because of an innate idea that inbreeding is injurious can by no means be supported. Nor do the ideas of Durkheim, Wundt or Herbert Spencer give adequate explanation. Mr. Flügel, therefore, endeavours to throw fresh light on the point. He speaks of the "biological absurdity" of parent-child incest, and sees important counter-influences existing in the fact that strong family ties conflict with social and individual development.

In conclusion, two chapters are given on the ethical and practical applications of the information gleaned from a psycho-analytic study of the family. It is seen that it is the tendency which draws the

individual *towards* the family which is most often in excess and therefore requires restraining, while the tendency *away* from the family is most often deficient in strength and hence needs stimulation. Efforts must be made to aid the process of weaning from family attachments both in its sexual and dependence aspects. In an ideal early upbringing lies our great hopes for the betterment of the individual and society.

The book is extremely readable and lucid. Mr. Flügel accepts more or less whole-heartedly Freud's views, but his attitude is never narrow-minded, and he logically gives us his reasons for any conclusions to which he may come. It can hardly be too highly recommended to any reader of the Journal who wishes to orientate himself better on such a vastly important subject as the psychology of family life.

C. STANFORD READ.

Functional Nervous Disorders: Their Classification and Treatment.

By DONALD E. CORE, M.D.Manch., M.R.C.P. Bristol: John Wright & Sons, Ltd., 1922. Medium 8vo. Pp. xvii + 361.
Price 25s. net.

Since it is stated in the preface that there is more confusion existing in the problems presented by the functional disorders than in any other branch of medicine, and that one source of this confusion appears to be associated with the current vagueness in the definition and classification of these conditions, we naturally expect to find that the contents of this book will in some way help towards a clarifying of our conceptions. In this hope we are not only disappointed, but Dr. Core seems to have brought confusion where little or none previously existed. To find early such a statement as—"Clinically hysteria is to be considered as primary, secondary and tertiary, according as to whether the manifestations are associated directly with an uncontrolled emotional tone, with discomfort of any description, or with the expectation of discomfort respectively," does not augur well, and when in the endeavour to gain some grasp of the author's meaning we read subsequent chapters, a condition akin to vertigo seizes upon us. That there is originality in the work is undoubted, but we are unable to understand how such seemingly bizarre conclusions are arrived at. The arguments throughout the book are so highly involved that we are precluded from any detailed criticism. One or two points, however, may be mentioned because of their startling novelty. The term "schizophrenia," used by Bleuler as a synonym for dementia praecox and implying a splitting of the personality, is used in these pages as signifying negativism; a use of the word which seems quite unwarranted. In the chapter on the drug treatment of hysteria the astounding statement is made that if any drug could be obtained which from its taste or smell earns the wholesale detestation of the patient, it might quite conceivably be as efficient a means of treatment as could be found! Dr. Core's ideas concerning psycho-analysis are stale and fallacious. In his preface he says that psycho-analysis is a somewhat pompous name to apply to a simple procedure which amounts to little more than detailed case-taking. Such a statement

was excusable many years ago when knowledge of the subject was scant among the medical profession, but at the present day it must be severely condemned. He advocates this form of treatment in certain functional disorders such as the "obsessive form of the mnemo-neurosis," but shows an absence of knowledge of such therapy by stating in a footnote—"Anyone who has performed psycho-analysis realises how surely, as the proceeding goes on, the patient, sooner or later, becomes angry; the very remorselessness of the questions, quite apart from their implication, induces in many a feeling of bitter hostility." Anyone who *really* psycho-analyses knows nothing of the sort. A psycho-analyst who knows his business rarely speaks at all.

It is difficult to find anything in this volume to recommend it. The writer has evidently worked hard at his subject, but his style is very diffuse and clouded, and we cannot help but think that the functional disorders are dealt with much more scientifically and accurately by more than one modern authority.

C. STANFORD READ.

Part III.—Epitome of Current Literature.

I. Psycho-Pathology.

A Method of Personality Diagnosis and Evaluation with Provision for Social Service Propaganda. (Journ. Nerv. and Ment. Dis., October, 1921.) Fernald, G. C.

Recent advances in the study of defective delinquents are largely dependent on the findings in the field of character, that component of mentality which connotes its quality in contrast to its degree, *viz.*, intelligence.

Action or behaviour eventuates from mental organisations fully as significant as indexes of personality-efficiency as are those which eventuate in thought and its expression. Thinking is the product of intelligence, behaviour the product of character, and on the latter each personality is accountable in daily usage and in juridical procedure.

Character deviations or rectitude cannot as yet be technically tested and numerically scored, but can nevertheless be presented in scientific description. Fernald details a classification of behaviour disorders in use at the Psychopathic Laboratory, Massachusetts Reformatory, the inquiry being in three fields—mental disease, intelligence and character.

Unless strength of will exists in the character of the individual the tendency to sloth will defeat the success of a high as readily as of a low intelligence. Mediocre ability to persevere in the pursuit of well-chosen purpose causes economic and sociological failure as often as does incompleteness of knowledge of the course to follow. The imbecile without self-determination will respond to his maximum capacity if on a farm as a chore-boy, content, trusted so far, but always supervised; not so another who as a tramp begs and pilfers but will not work. The essential difference lies in the field of character.

The investigation of the psychiatric personality determines (1) the presence or absence of mental disease, (2) the mental intelligence level, and (3) deviations or rectitude of character, as egocentricity, sex-conflict, anti-social trend, lack of self-respect, of ambition, of amenability to reason and authority, emotional faculty, unbridled acquisitiveness, etc.

Character then determines the life-activities of the individual. Defective intelligence is stationary and cannot be advanced, but character-growth can both be stimulated and improved. Healy believes in emphasis of the study of character as a thing by itself. Mental tests, so strongly advocated to-day, do not cover all the elements of intelligence. They are insufficient for the determination of conduct-prognosis, of the outcome of character traits, or of vocational possibilities. Psychologists are beginning to awake to this fact. Aristotle's dictum cannot be maintained—that good intelligence will prevent a man from doing wrong ; that if he was not a fool he would not do wrong.

Investigations in a large factory showed that mental tests gave little useful information except regarding clerical workers. There is otherwise little correlation between the tests and the behaviour prognosis, *i.e.*, success at work. Some of the most reliable workers may have poor mental capacity, *e.g.*, label-pasters and laboratory cleaners. In fact intelligence may be a handicap in very necessary phases of industrial life ; there is instanced a delinquent defective whom his master stated to have been the *only* one who had ever carried out his particular work satisfactorily.

Healy holds that responsibility is hardly a feasible category in such a scheme of classification. Responsibility is a metaphysical conception not open to clear definition, and *in practice* has little to do with the successful management of many cases. In this regard the law seeks finite answers to questions that are unanswerable. It is high time that in the practical issues hereon dependent psychologists should make a plain declaration to the legal profession.

JOHN GIFFORD.

2. Neurology.

The Vascularity of the Cerebral Cortex of the Albino Rat. (Journ. Comp. Neurol., August, 1921.) Craigie, E. Horne.

By vascularity is here meant the sum, per unit volume of tissue, of the lengths of the capillaries measured with the micrometer in successive serial sections. Craigie reports observations on the relative vascularity of the various cell laminæ of the cerebral cortex of the albino rat. He finds that in every cortical area examined the lamina granularis interna (Brodmann's lamina IV) is much the most richly vascular, the lamina pyramidalis (III) coming next, with the lamina ganglionaris (V) very little behind it ; the poorest layer is the lamina multiformis (VI) in every area except the insular, where the lamina zonalis (I) is very slightly poorer. These observations are interesting in reference to what is at present known of the development and functions of the laminæ. From the work of J. S. Bolton, G. A. Watson, Ariëns Kappers, van Valkenburg, Nissl, van't Hoog and others, it appears that the granular layer (IV) is a primary layer having functions originally receptive, that the functions of the infragranular layers (V, VI) are mainly those of projection and

intra-regional association, and that the supragranular layers (II, III), which are the last to appear phylogenetically, are concerned chiefly with associations of a higher order (interregional), including intellectual processes. It is interesting now to learn that these newer and more highly specialised portions of the cortex are less richly vascular than the granular layer (IV), from which, according to Kappers and van't Hoog, they have phylogenetically been developed (cf. *Journ. Ment. Sci.*, April, 1921, p. 229). Further, the observation that the infragranular layers, which give rise to corticifugal fibres, are less richly vascular than the granular and supragranular layers, which are receptive and associative in function, has suggested to Craigie a comparison with lower centres in the brain stem, where likewise the motor nuclei are less richly vascular than the sensory and correlation nuclei. Whereas in projection cells the nervous current is directly realised and led away, in the granule cells with short axons forming an intricate network the stimulation is kept within a circumscribed region, so it is perhaps only reasonable to expect that such a region of concentrated local activity should have the relatively rich blood supply that Craigie finds.

Comparing different cortical areas with one another, he observes that the average vascularity of all the layers is the same in the occipital as in the temporal region, and is only slightly less in the praæcentral region. The parietal region is distinctly richer than the others, while the insular region is much the poorest.

Differences of vascularity in the two sexes, and in different strains of rats, appear to be more marked in the cerebral cortex than in other parts of the central nervous system. The vascularisation of the more recently evolved centres appears more susceptible than that of more ancient regions to sexual, hereditary or environmental influences.

SYDNEY J. COLE.

3. Ætiology.

The Relation of Oral Infection to Mental Diseases. (*State Hosp. Quart.*, November, 1920.) Root, W. R.

Cotton cites cases where extraction of unhealthy teeth in early mental cases resulted in marked improvement or recovery, and states that insanity can be prevented or cured by principles discussed in his paper. The organism principally concerned in dental infection is a non-haemolytic streptococcus known as *Streptococcus viridans*. The non-haemolytic group of streptococci are non-pus-producing, slow-growing organisms which do not cause pain, swelling, or even a rise in temperature, hence easily overlooked, producing a chronic infection. They may suddenly become active and cause the death of the patient. The extraction of teeth alone may not correct the results from a secondary focus in the kidney, liver, or gastro-intestinal tract. The streptococcus may damage the intestinal mucosa and allow the colon bacillus to pass through into the lymphatic circulation. Thus toxic-infectious psychoses may be caused. The physical disabilities of the mental patient must be more seriously considered and treated.

Manic-depressive insanity, dementia praæcox and the paranoid states are stated to have a common ætiology, namely, chronic infections and

resulting toxæmias. They are stated to recover after treatment of the oral infection. Hence we must either change our diagnosis in the cases which recover from dementia præcox to manic-depressive insanity, or admit that dementia præcox is not the incurable malady we have believed it to be.

The existence of chronic infection is determined by methods as follows: (1) Complement-fixation test of the blood for *Streptococcus viridans*. (2) Examination of the teeth: The X ray must be used. All capped and pivot teeth are extracted and all fixed bridge work removed. (3) Infected tonsils: These should be enucleated. (4) Gastro-intestinal tract: Involvement of stomach, duodenum, or lower intestinal tract occurred in 50 per cent. of cases. A routine examination is made and autogenous vaccines are used. *Streptococcus viridans* is the principal infecting organism but a virulent colon bacillus may be present.

At the Trenton State Hospital, as the result of treatment the average monthly discharges to admissions increased from 43 per cent. to 80 per cent. Mills does not hold these optimistic views, and states that teeth were freely sacrificed without a single convincing result. Anders also believes that the latest fad, as he terms it, has far-reaching baneful effects, although he admits that many morbid medical conditions may be oral in origin. He thinks that the medical and dental profession should protest against the all too common custom of extracting teeth on the mere assumption that when tooth root disease exists it is the cause of disseminated infection. All other foci of infection should be eliminated before consulting a dentist.

Fine also believes that too many teeth are extracted and thinks that the systemic disease may account for the dental disturbance. Fones thinks that dentistry should concentrate on the soft tissues (gums, pericementum and pulp), for these permit the ingress of bacteria into the lymphatics, thus producing many systemic infections. He agrees with Cotton.

Cahn states that there are faddists in every profession, and as hundreds of ovaries and appendices have been needlessly sacrificed, so have thousands of teeth, although a great number of seemingly hopeless cases have been cured by the eradication of oral sepsis. Any infected area should be removed, be it in the mouth, throat or prostate. The removal of vital and healthy teeth for the supposedly clearing up of an oral infection is gross ignorance and malpractice, but the removal of dead infected teeth or the clearing up of a pyorrhœa alveolaris should be strongly advised.

W. J. A. ERSKINE.

The Nature of So-called Idiopathic Epilepsy according to Recent Studies.
(*Archiv Neurol. and Psych.*, February, 1922.) Pagniez, P.

The formulated conceptions of idiopathic epilepsy still maintained are that it is a resultant of (1) a predisposition due to a congenital or acquired lesion of the nervous system, and (2) a precipitating cause, *viz.*, an intoxication, usually alimentary. The antecedent brain lesion is due to local mischief, possibly traumatic, but frequently toxic.

In a series of cranial war injuries French workers demonstrated 10 to 20 per cent. of subsequent epileptic seizures, partial or complete, and

the longer the observation the greater the incidence. The attacks supervened after a variable latency, commonly three to five months, but in one-fifth of the series five to ten months. General epilepsy was less prevalent than the Jacksonian type. The latent period coincides with cicatrisation of the lesion, the form and particularly the extent of the scar-tissue being the determinant, and not the lesion itself.

The crisis of *grand* or *petit mal* is produced by a cortical vaso-motor derangement, whether anaemia or stasis. Anaemia must be an adequate cause, for suppression of systole in certain cardiac cases results in vertigo 3 secs., fainting 8, and epileptiform convulsions 12 to 15 secs. Leriche is stated to have observed manifest anaemia in exposed brains in two subjects. Also the retinal arteries have been seen in spasm 20 secs. before convolution and persistent throughout *status epilepticus*.

Alimentary intoxications are admitted the most important cause of onset, sometimes the accumulation of normal waste products, sometimes polyglandular inefficiency. The stereotyped manifestations of epilepsy cannot be identified with the variable phenomena of anaphylactic crises.

Edgeworth claimed complete cure in 40 per cent. of a short series by protein therapy—small doses of peptone intravenously. No success attended auto-serotherapy.

JOHN GIFFORD.

4. Clinical Psychiatry.

General Paralysis and Heredity [Ueber die Rolle der Erblichkeit bei der Paralyse]. (Arb. für Psychiat., München, Bd. ii, February, 1921.)
Megendorfer, F.

From the time of Bayle the influence of heredity in the causation of general paralysis has received much attention, and at the present day there are many leading authorities who hold that, next to syphilis, heredity is the most potent aetiological factor. It has been shown that in the families to which paralytics belong there is an hereditary mental taint, less than in the families to which persons affected with other mental diseases belong, but greater than in the families to which normal persons belong. Further, in the descendants of paralytics a mental taint has often been observed, so that some authors have held that general paralysis not only arises from degeneracy but produces degeneracy. Most studies, however, of the offspring of paralytics have dealt chiefly with young persons, and do not show their fate in adult life; on the other hand, investigation of the family histories of mentally affected congenital syphilitics yields results that are misleading, because account is taken only of the diseased and not of the healthy. An inquiry into the mental constitution of the descendants of paralytics, if it is to yield results that shall be comparable with those yielded by a survey of the descendants of persons of other categories, must start from the paralytics themselves.

From the entire paralytic case-material of Upper Bavaria since the year 1859, Megendorfer has selected such cases of general paralysis as satisfy certain requirements: The diagnosis must be beyond doubt, the date at which the paralytic became infected with syphilis must be

approximately known, and his youngest living child must now be at least thirty years old. In 43 of these cases he has been able to make searching inquiry of relatives. He gives statistical information respecting the offspring of these 43 paralytics, and he gives a number of genealogical trees. Dividing the offspring into those begotten before and those begotten after the parent's infection with syphilis, he finds : Miscarriages or stillbirths, 2 and 29 respectively ; died of syphilis, 0 and 49 ; died of non-syphilitic accidents, 5 and 19 ; healthy sane persons, 14 and 50 ; psychotic, 0 and 6 ; psychopathic or neurotic, 4 and 32. He has collected information also respecting 120 grandchildren.

Among the children begotten after the infection there are many quite sound persons. Consider, for example, a family in which the father acquired syphilis before marriage and then infected his wife. She soon became tabetic ; he, later, paralytic. There were five children of the marriage, of whom the fourth died in childhood ; there were no miscarriages ; the three last children were born when the mother already had tabes. The eldest son, a fine, big, handsome man, is a high officer of state, with an exceedingly responsible position in the Empire ; the second son is a colonel ; the third, a high official ; the daughter, too, is in every way a person of first-rate qualities. The two married sons have large families of healthy children and grandchildren. Meggendorfer's material affords several other instances in which the families of paralytics have won social advancement. Moreover, the three persons included who were begotten after the father became paralytic are all quite sane and healthy.

The psychotic and psychopathic groups of offspring exhibit a great variety of disorders, which are found in about the same proportions in those begotten before as in those begotten after the infection. There is a comparatively large number of excitable and hot-tempered psychopaths. Such a character, as Plaut has shown, is not rare in young people who have been congenitally syphilitic, but it is not to be regarded as a result of syphilis, or of germinal injury arising from syphilis. The material includes several schizoid psychopaths. We know that the causation of dementia praecox has often been ascribed, particularly by the Viennese school, to syphilitic damage of the germ ; but all the schizoid cases here have dementia praecox in their family history ; the psychosis is transmitted irrespective of the general paralysis, and the cases arising can be simply explained on Mendelian principles without assumption of any germinal injury of syphilitic origin. So, too, wherever in this material a manic-depressive disorder is noted, similar disorders have occurred in the ancestry.

Psychotic or psychopathic taint does to some extent make a person more liable to general paralysis, but only by inclining him to reckless indulgence of sexual appetite and so increasing his risks of syphilitic infection ; the taint has no greater importance for the production of general paralysis than for the acquisition of syphilis. There are various indications that the exceptional proneness to general paralysis in certain families is due to some familial peculiarity of the physical defences against the spirochæte ; there is no indication that this peculiarity is in any way related to hereditary mental taint.

The Forms in which Insanity Expresses Itself [Die Erscheinungsformen des Irreseins]. (Arb. für Psychiat., München, Bd. ii, 1921.)
Kraepelin, Emil.

Many have been saying of late, and with some amount of truth, that the methods we have hitherto used to distinguish forms of mental disease are to a considerable extent exhausted, and that we must find new ones. Our desire is to get beyond mere differentiation and classification ; we wish to understand the essential nature and inner relationships of the morbid processes, to learn the laws that govern the occurrence of mental disorders, and to comprehend these disorders as results of pre-existing conditions. The diversity of the clinical pictures occurring in the same fundamental disorder shows us that such conditions must be very complex. The results even of so simple a cause as head injury are very varied, for it affects an organ that has behind it an extremely elaborate racial and personal evolution. The external cause determines little more than the general outline of the clinical picture ; the details are filled in by the personality of the patient. Thus, for example, particular poisons can produce particular emotional states, but the effects of these states depend on conditions already laid down in the personality.

What clinical means have we of learning the inner history of production of a mental disorder, and how are we to know that the conception thus obtained of it is true ? We may give rein to an imaginative sympathy as of the poet, or we may take the sufferer's own explanation ; but the fancies of the psycho-analyst can nohow be verified, and many a melancholic in asylum will have it that all her woe is home-sickness, yet when she recovers we see it was not. By collating great quantities of observations we may investigate the influence of sex, of age, and of race ; but the indispensable pre-requisite for all such comparative psychiatry is the recognition of definite morbid processes produced by definite causes ; comparative studies of pathologically heterogeneous material are bound to suffer shipwreck through the ambiguity of the phenomena observed and the confusion of causal with modal influences. By studies of family histories we may investigate the influence of heredity, but we are never able to probe such histories far enough back ; we see some results of the mixture of dispositions derived from different families, but we see also traces from ancestors immeasurably remote. We may search into the previous personal history of the patient himself, and we know, for instance, that impressive experiences occurring in the course of sexual development sometimes leave a conspicuous mark in fetishism, but the complexity of his total past experience is bewildering.

We have to reckon not only with fundamental disorders determined by particular causes of disease, but with forms of expression determined by innate or acquired characters of the personality. Disturbances that occur without exception in the same morbid process may roughly be regarded as the direct effects of the underlying cause, the variable phenomena as referable to personal peculiarities. The fundamental disorder, however, will show gradations according to the strength, time relations and locality of the morbid influence ; and what is more, the common human characters of the patient will so outweigh his personal peculiarities that the greater part of the form in which the disorder expresses

itself will have a constant recurrence as the natural response not only to this morbific influence but to other morbific influences as well.

Thus, as by a process of exclusion, Kraepelin finds that our best plan now is to try for an understanding of those forms of expression which, being dependent on pre-established constitution of the human organism, are met with again and again in a variety of diseases. In the morbid disturbances, phenomena that are observed at lower stages of development, in children, in uncivilised man, and in animals, are often reproduced. The mental equipment of the adult is a stratified deposit from innumerable stages of phylogeny and ontogeny, and buried in its strata are relics of extinct dispositions, which can be revivified by the stimulus of disease or resurrected by removal of the superincumbent layers. They are mere broken fragments, and most of the extinct dispositions must have vanished without leaving any such trace. A particular form of expression cannot be correlated with a particular stage of development of personality, but from such relics as are brought to light we may be able to tell more or less what strata are affected by the disease, and to get some inkling of the laws that determine its spread from one stratum to another.

Kraepelin distinguishes three main groups of expression forms: a higher group comprising delirious, paranoid, emotional, hysterical and impulsive forms; a lower group comprising encephalopathic, oligophrenic and convulsive forms; and a middle group comprising schizophrenic and speech-hallucinatory forms. Every one of these forms can occur in a great variety of morbid processes. Those of the first group, comparatively superficial, can combine with one another, and perhaps with those of the middle group, but not with those of the lower. Those of the middle and lower groups are frequently accompanied by those of the higher. In those of the middle group we occasionally find mixtures from both higher and lower.

Endless attempts have been made to distinguish hysterical from epileptic disorders by particular clinical signs—for example, by the character of the fits. But the character of the fits shows only the sphere in which the disturbance is taking place, not what the disease is. In either disease we may have the phenomena of both. To distinguish the morbid process we must employ other criteria—the mental condition as a whole, the ætiology, and perhaps the metabolism. Similarly it is often impossible to distinguish manic-depressive insanity from dementia praecox; yet we know they cannot be the same, for on the one hand we have patients recovering over and over again, and on the other hand patients who pass into hopeless dementia with grave destructions of cortex. The emotional and the schizophrenic expression forms do not indicate the nature of the morbid process; they show only what sphere of personality is affected. While, however, in dementia praecox we often see manic and depressive phases, it is much rarer to find marked schizophrenic signs in manic-depressive insanity. A destructive process can have wide-spread inhibitory or excitatory effects, but a disorder that can right itself will seldom penetrate deeply.

Suicide among Soldiers at the Psychiatric Hospital at Mombello. (Archiv Neur. and Psychiat., September, 1920.) Sacchini, G.

Suicidal attempts are more frequent among mentally diseased soldiers than civilians. The idea of death is rendered less repugnant and even familiar by the violent reactions of war. In one type of personality suicide is the preferred alternative to suffering.

Fifty cases are analysed: there was only one fatal result. Fourteen had made previous attempts in civil life. Hereditary taint was pronounced—of alcoholism 32 per cent., suicide 30 per cent., psychopathy 16, neuropathy 16. Ten cases were syphilitic, 3 tuberculous and 3 fearful of disease. Six were convalescent from trauma or acute disease; 20 had been neurasthenic following grave illness. Immediate causation was stated thus—"tired of living" 8, hypochondriasis 9, love disappointment 4, and not assignable 6. Definite pathologic causes were—attacks of unconsciousness, complete or partial, 12, gross mental disease 3, and military reasons were fear of censure and fear of return to the front.

The means chosen were—poison 22, precipitation to ground 9, under heavy vehicles 2, hanging 7, "cutting" 5, drowning 5, firearms 4. Two made multiple attempts.

Mental disorders classed mainly as neurasthenia, epilepsy, dementia praecox, and feeble-mindedness. Most had degenerative stigmas, 8 had criminal records, and 7 had previously been rejected for service. The analysis emphasises the frequency of an abnormal basis and the consequences of war on abnormals, whether or not congenitals, and particularly on defectives.

JOHN GIFFORD.

Voluntary Seizures and Liberty Psychoses [Les Séquestrations volontaires et les psychoses de la liberté]. (Ann. Méd.-Psych., December, 1921.) Courbon, Paul.

According to Dr. Courbon forcible and illegal incarceration in asylums is a thing of the past in France. The sceptical visitor, expecting to encounter persons unjustly detained, is not only surprised at finding none, but is still further surprised by the discovery of patients pleading, in the most reasonable manner imaginable, to be allowed to remain and not to be given their freedom against their will.

The present article is concerned with those individuals who voluntarily seek admission to, or beg to be allowed to remain in, an asylum, though not presenting any mental trouble actually. The cases are divided into two main groups:

(1) The first or *utilitarian* group comprises those individuals who seek shelter in an asylum as the most convenient way of escaping justice, or of avoiding work. In order to obtain admission they simulate insanity or claim to have had previous psychopathic attacks. Their willingness to remain is but short-lived, for their object is not to escape from their evil impulses, but on the contrary, to be able to indulge them to better advantage. They soon begin to demand their discharge on the pretext that their mental state is normal. The cases belonging to this group are malingers, and as such are abnormal; but they are not insane, nor does it follow that they become insane when given their liberty.

(2) The individuals belonging to the second group have a sincere

wish to be detained on a permanent basis. Internment is for them final : it is in fact their only means of defence against themselves. The asylum is, as it were, a shelter from insanity, which attacks them as soon as they are given their discharge. Let loose on society they become on the one hand the *inoffensive dupes*, or, on the other, the *irresponsible scourges* of humanity. In these cases insanity is the direct result of freedom, hence the author describes them as *liberty psychoses*. According to whether the faculties of initiative or of inhibition are at fault there are two types of liberty psychoses :

(a) To the first type belong those timid, retiring persons who dread any responsibility in life ; who are deficient in initiative, but above all in judgment. As long as they are supported by someone possessing that energy which they themselves lack they can conduct themselves normally ; but when this support disappears it becomes necessary for them to seek protection in an institution, otherwise they rapidly lose their reason. Dr. Courbon says these cases are psychopaths of the polymorphous type, whose mental disturbance is perfectly obvious to all. Socially they are a danger to themselves and become easy victims of the machinations of others.

(b) The second type of liberty psychosis includes those persons who are subject to impulsive obsessions of a special kind—the morbid impulses only being awakened by contact with external influences. Their gratification brings no satisfaction to the subject, but on the contrary, these obsessions are a constant source of anxiety to him. In consequence, from the moment that there is no temptation from without the impulses become latent and the anxiety ceases. Whence the desire on the part of the subject to avoid all provocation in future. Judgment is not affected in this type. It is essentially the power of inhibition which is insufficient. The result is that all the intellectual faculties become subservient to the impulses ; and the evil conduct is so well co-ordinated that the incompetent observer has some difficulty in recognising its morbid origin.

A description of two extreme cases illustrating the two types of liberty psychoses is given by the author, who states that, though it is rare to meet with types so complete as those he mentions, one very frequently sees cases which resemble them in many particulars.

NORMAN R. PHILLIPS.

5. Treatment of Insanity.

Treatment of Melancholic Depression by Large Doses of Strychnine
 [Traitement de la dépression mélancolique par la strychnine à très hautes doses]. (Le Prog. Méd., March 19th, 1921.) Hartenberg, P.

Hartenberg treated a series of six cases of melancholia with large doses of strychnine with the result that he obtained five complete successes and one partial success. The principle of the method he employs consists in causing the patient to absorb the largest quantity possible of the drug until the nervous system and the organism generally become saturated. According to the author's observation it is not until the patient has begun to take about 5 cgrm. in the 24 hours that the alkaloid begins to act. Anything short of this quantity remains

without effect, and this fact explains why the therapeutic value of strychnine in these cases has so far remained unknown. But this minimal dose of 5 cgrm. is not sufficient to ensure success. It is necessary to go far beyond it, to push the drug to the extreme limits of tolerance—up to between 7 and 8 cgrm., i.e., until saturation of the nervous system occurs. At this point a state of subacute strychnism is established, with muscular hypertonia, as evidenced by contracture and exaggerated reflexes, the influence of which on the evolution of the malady is decisive. By the powerful super-excitation which it involves, this drug reaction creates a kind of organic crisis which acts as a shock to the patient, stimulates his nutrition, awakens his sensibility, revives his physical and intellectual activity, rids him of his inertia and torpor so that he again becomes fitted for a normal life.

This intensive treatment is realised by progressive and repeated doses. Tolerance for the drug is such that the author found it possible to increase daily each dose by $\frac{1}{2}$ mgrm. Moreover he found that elimination took place in about five hours.

The actual method of procedure is as follows : using a 100 per cent. solution of sulphate of strychnine, the treatment on the first day consists in administering either by mouth, or, if the patient refuses, by injection, 7 drops, or $3\frac{1}{2}$ mgrm., repeated three times at intervals of at least five hours, i.e., about 1 cgrm., or 21 drops in twenty four hours. On each succeeding day each dose is increased by a drop or $\frac{1}{2}$ mgrm. If, after a few days, symptoms of strychnism—vertigo, giddiness, stiffness of the legs or of the jaws—should supervene, the patient is kept on the same dose until that reaction disappears. Then again it is increased by a drop daily, and so on. The time arrives, however, when tolerance is no longer exhibited—the same dose invariably producing a reaction. This indicates that the point of saturation is reached beyond which one cannot proceed.

The cure progresses in proportion as the drug is increased. Until 5 cgrm. is reached, i.e., for about the first month, amelioration is *nil* or insignificant ; on the contrary, once beyond that dose, progress becomes rapid. It is found that the patient wakes up, revives, speaks, begins to interest himself, occupies himself, smiles. At the stage of saturation the normal state is generally regained. It only remains to decrease the drug more or less rapidly by three times three drops each day until the initial dose is regained, when it may be discontinued without risk of a relapse.

A brief *résumé* is given of the six cases treated by this method.

NORMAN R. PHILLIPS.

*Is the Treatment of Patients with General Paralysis Worth While ?
(Journ. Nerv. and Ment. Dis., October, 1921.) Solomon, H. C.*

Pathologically general paralysis is a degeneration of the parenchyma of the central nervous system. As to the efficacy of treatment there is a great diversity of opinion. Diagnosis is very difficult as between dementia paralytica and cerebrospinal syphilis—cases put in either category may prove to be the other. Essential to the diagnosis is more or less insidious deterioration of the personality of the individual with the neurological symptoms, especially facial tremor and speech defect ;

and also positive laboratory findings, *viz.*, Wassermann plus with 0·2 c.c. of spinal fluid, paretic gold curve, globulin, excess albumen and cell count near 100.

Solomon believes that thorough treatment of general paralysis results in prolonged remissions of two to six years with restoration to good economic ability and efficiency. In 1916, of the cases treated 25 per cent. were discharged on remissions. Age does not seem a criterion—cases æt. 65 have done well, but one cannot be dogmatic in prognosis. A young man with good heart and kidneys may do badly, probably from loss of immunity from a virulent infection.

The methods used were injections of arsphenamin 0·6 grm. intravenously twice a week for three to four months, but intensive continuance is essential. The author feels that he has been over-conservative in limiting the doses to 0·6, 0·8 and 1·0 grm.; larger doses do not appear to approach the tolerance of the patient, and at the worst excessive dosage would but shorten a life which *per se* would extend a few months at most.

In combination with this method is used the intraspinal route, and the intraventricular (cistern puncture) route of Ayer. In inflammatory conditions of brain or cord the latter method revolutionises treatment; and when used in conjunction with the other routes, it necessitates a revision of our ideas of prognosis. Spinal drainage is also advisable in some cases.

Ruggles confirms this view of Ayer's intra-cistern method, and in his hands a series of fifty cases have revealed a lessened reaction, ready co-operation on the part of the patients, and absence of bad results. Where intravenous treatment plus spinal drainage, or intravenous plus intraspinal injections fail, the intracistern route should be adopted.

In the absence of these treatments the patients concerned would, it is believed, either be dead, or be still in institutions.

JOHN GIFFORD.

6. Mental Hygiene.

Childhood: The Golden Period for Mental Hygiene. (*Ment. Hygiene*, April, 1920.) *White, W. A.*

Mental illness is a type of reaction of the individual to his problems of adjustment which is conditioned by (1) the nature of those problems, and (2) the character equipment with which they are met.

As regards the first of these factors, the general statement may be made that if the stress of adjustment be sufficiently great any individual may break down. The second factor, the character equipment, is the important one for consideration. It may be enforced by mental hygiene. Mental illnesses depend upon defects in the personality make-up, and this latter is what it is as a result of its development from infancy onward. Mental illnesses are the outward and evident signs of intra-psychic difficulties (conflicts). Conflicts depend upon traits of character originating in childhood. The peculiar trait of character with which the individual has been struggling all his life—suspicion, cruelty, jealousy, timidity, curiosity, over-consciousness, etc.—is conditioned early in life as a result of the influences exerted by the members of the

family or their surrogates. The child is peculiarly plastic. Childhood is therefore the period *par excellence* for prophylaxis. The germ-plasm theory of heredity and certain derivatives of this theory are too fatalistic. Even if fundamental traits are inherited, they may be turned into a useful direction; for instance, intense curiosity may be turned into scientific investigation.

The points of attack are as follows: First, a real understanding and development of child psychology. Study what the child is trying to do in terms of the child psyche, not as if it were a small adult.

Second, an understanding of the nature of the child's relations to its environment, particularly its personal environment, and specifically to the members of the family. The family situation contains within itself certain elements of a disruptive nature. It is as essential that the child should ultimately escape from its bondage to the family as it is that, for a time, it should be a part of that family and more or less subject to its direction.

Thirdly, a full understanding of these matters must reach their application in education. Education needs to be developed as a scheme for assisting and guiding the developing personality. And, finally, as the child cannot acquire all this information and then apply it to itself, it is essential to develop some means whereby such information can be translated into effectiveness. As the family is less accessible, such approaches must come largely through the schools, although there are many problems that cannot be approached in this way. Much knowledge must also be acquired about the child before it is of school age. In Washington this work is done in connection with a private charity, which helps the mother during pregnancy and the child for the first six years.

Serious breaks in adjustment do not ordinarily occur without the co-operation of some lack of balance in the personality make-up; they are rarely accounted for by the influence of extraneous circumstances alone. We should correlate the sick adult with the knowledge we have that his illness is traceable in its beginnings to his early life.

Much work now being done has mental hygiene implications—the determination of the minimum requirements of food, clothing, wages, etc. Here also come in the care of the pregnant woman, child labour, sex education, school sanitation, and more specifically the problems of the atypical child and juvenile delinquency, all of which can be better dealt with in proportion to our increased knowledge of child psychology, while such social problems as marriage, divorce and birth control have direct bearings.

The child is the unfinished product of the past through heredity of the innumerable elements, largely personal, of its environment, of its instincts as they work out in that environment, of social and family traditions, and of the social standards of its time and place, and all of the various approaches indicated can be made more effective in the light of such knowledge.

As many of the breaks occur in the adolescent period or the period of early adulthood, the author recommends that in school or college there should be an adviser skilled in matters psychological, and sympathetic and understanding of the problems of the young.

W. J. A. ERSKINE.

The Certification of Children of School Age. (Stud. Ment. Ineffic., April, 1920.) Shrubsall, F. C.

The writer cites the various Acts dealing with defective and epileptic children, comments on the mechanisms involved, and gives practical elucidations toward diagnosis. Between the ages of 7 and 16 years provision for education and to a certain extent residential school accommodation must be made by the local education authority. Parents' interests are safeguarded, but consent must not be unreasonably withheld. Should a child be discharged from a special school as no longer defective the certificate is returned to the parent, and cannot be received in evidence in legal proceedings without the consent of the child or its parent.

In certification it is important to determine deficiency as against mere backwardness, and further, where defective (but not imbecile or idiot), whether the child is educable in a special school. Diagnosis is essentially composite, and the examination is conducted *abroad* by a commission of three—an inspector, the rector of the school and a medical officer. In this country the usual practice under Act 1899 was for the statutory examination to be held by the medical officer in the presence of a special school teacher and the class (or head) teacher from the ordinary school, thus permitting consultation, which is eminently advisable. The Act 1914 contemplates similar procedure but by way of written reports. The medical officer is solely responsible for the final decision; it is, however, only right that a member of the profession primarily concerned should certify the failure to profit in the usual channels.

The scholastic retardation being decided, the cause is sought and the question of permanency considered. Mental deficiency forms but a small proportion of the total cases, of which one-fourth are due to physical defects and sick-absence; rather more than a fourth to truancy, change of school and bad home conditions. It is common to find hereditary limitation of educability. Such information is essential to the medical officer, who obtains it (1) from the form of nomination, (2) from the attendance officer, and (3) the care committee. Large allowances are necessary for illness and malnutrition. The capacity is estimated in grades and standards, and average progress demands advance of a standard a year, from Standard I at $6\frac{1}{2}$ years to Standard VII between 13 and 14. Backwardness is noted, as a rule, about $6\frac{1}{2}$, when a child leaves the infant for the senior school. There is no precise definition of backwardness, but from the regulations this appears to mean a lack of two to three years behind the normal. The backward child will make steady progress, but not at the normal rate, and will attain Standard IV in the ordinary school classes; the deficient will need individual attention and a special school. Defects of vision or hearing, or ill-health, should be treated prior to the statutory examination, and where such are detected the child should be referred back to ordinary training.

Educability depends not only on general intelligence but on special aptitudes. Normals vary in accordance with the laws of probability, but defectives of all grades are characterised by great irregularity of mental development. Even highest grade normals may fail in special

aptitudes, as music, drawing, and unless of social importance this passes unobserved. But even a genuine defective may maintain a position in the world if possessed of special aptitude of social value. Normal education methods postulate facility in linguistic and numerical symbols ; manual dexterities are only of late being introduced. Children failing in these postulates are defective, for the definition of feeble-mindedness in the child is incapacity for education by ordinary methods—yet such children will be acceptable in the world if they possess the power to reason out problems of daily life and social life. It is to be noted that the German Common Law Code defines imbecility (which includes our feeble-minded) as the inability to consider the consequences of acts. The examination is essentially the assessment of this ability by tests appropriate to the age of the child.

The imbecile or idiot is one who cannot care for himself in due proportion to his age ; the deficient one who can fend for himself, but cannot compete with his normal fellows in the earlier school classes and needs special instruction.

The Board of Education requires a special record under motor and sensory reactions, emotions, intelligence, mental age (by Binet-Simon tests), will-power, other moral characteristics. The tests are simply performances to order on the basis of which a quantitative estimate can be made of the shortcomings from normal standard. Good relations between observer and child are essential.

Ordinary school is indicated by a deficiency of 2 years Binet to age eight, 3 years to age twelve, and 4 years above this. Deficiency in excess of this predicates a special school, with the proviso that information as to attainments, general behaviour and street knowledge is used as a check. It is not the results of the tests, pass or fail, which are important, but the behaviour of the child to each test. The total result gives mental age, the behaviour may show lack of attention, co-ordination and memory. Emotional conditions may mean reference back to school and a subsequent re-examination.

Children aged seven years testing near 3 years go to special school ; testing below 3 years with restlessness and no attention cannot so benefit, but are re-tested later. Children seen at seven to eight years not previously tried in the infants' department have a mentality of 3 years or less ; they should be seen on two occasions with some months' interval before they are labelled imbecile. A child in an infant school without interest, vegetative and placid, or restless and wandering, may be diagnosed at once.

In general, a child up to eight years who can do some 4-year tests and up to ten who can do some 5-year tests would be given a trial at school.

Children from a special school are termed imbecile after long trial without appreciable progress—usually 5 years' retardation and basal Binet age (*i.e.*, all tests passed) appears unchanged or advanced only 1 year after several years' trial. No child should be excluded if there is progress, however slow. If good advance is obtained in a special school he may be returned to ordinary school if likely to maintain the advance ; but it is to be considered that this will mean association with younger children in a low standard, and, perhaps, loss of the manual training

which has engineered his recovery. A consultation should obtain between the head teachers of the special and ordinary schools, as special oversight must be continued. Dispute is referred to the Board of Education.

On approaching the age of sixteen—the school-leaving period—each case requires review as to suitability for employment and social efficiency. General adaptability is the criterion, capacity for fulfilling tasks and following instructions, also the possibility of opening for employment. If diagnosed feeble-minded, guardianship or institutional care is requisite. The evidence from all sources need not be sufficient to enable the local authority to prove that withholding of consent is unreasonable, but if this factor is present it should be recorded.

JOHN GIFFORD.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE QUARTERLY MEETING of the Association was held in the Rooms of the Medical Society of London, 11, Chandos Street, W., on Thursday, May 25th, 1922, Dr. C. Hubert Bond, C.B.E., the President, occupying the Chair. The Council and various committees met on the previous day.

The minutes of the last meeting, having already appeared in the Journal, were accepted as read and duly signed.

OBITUARY REFERENCES.

The PRESIDENT said that since the Association last met it had lost by death three valued members. They were Dr. F. C. Blakiston, who had not long been Superintendent of the Isle of Man Mental Hospital, Dr. H. K. Abbott, who for many years had occupied a similar position at Fareham, and, lastly, Dr. J. Middlemass. With regard to Dr. Middlemass, he made the announcement with a deep sense of personal regret, a feeling which he knew was shared by every member of the Association, particularly by those who had been associated with him on the Council, and notably, lately, in connection with the revision of the Nurses' Handbook, as well as on the various committees of the Association. For the past twenty-three years Dr. Middlemass had been Medical Superintendent of the Sunderland Borough Mental Hospital, and his membership of the Association commenced in 1893. There were but few who had the foresight or the opportunity to lay so sure a foundation for their medical studies as did Dr. Middlemass, for before commencing them he attended all the courses for the full curriculum, first in Arts, then in Science, in both of which Faculties at the University of Edinburgh he was a graduate before he proceeded to the degrees of Bachelor and Doctor of Medicine. During the brief period of the speaker's residency at Morningside he came into close touch with Dr. Middlemass, who was then Pathologist there under Sir Thomas Clouston. He was possessed of very high scientific attainments, was most painstaking in his work, and his counsel, teaching and friendship would long be treasured by those who were privileged to obtain them, among whom the President had always been glad to count himself.

For the past three years Dr. Middlemass had been Lecturer in Psychological Medicine at the University of Durham, and the last letter the speaker received from him expressed the desire to see developed, at Newcastle and at the neighbouring public mental hospitals, arrangements for teaching and research in mental disorders, which would be worthy of the name of a school of psychiatry. Those in a position to do so owed it to his memory to do all they could to secure the fulfilment of that wish. In this room and at other places where the Association had,

from time to time, met, they all remembered Dr. Middlemass as an indefatigable *confrère*, and it must be no small grief to the senior members of the Association that he had not been spared, as was their hope, to occupy—probably in 1924—the President's chair.

He was sure it would be the wish of the Association that the Honorary General Secretary should convey to Mrs. Middlemass and the relatives of the other deceased members the Association's sympathy in their bereavement.

This was agreed to by members rising in their places.

MATTERS ARISING OUT OF THE COUNCIL MEETING.

The PRESIDENT said that at the meeting of the Parliamentary Committee a matter was discussed which was reported to the Council, and which ought to come before this general meeting, namely the projected legislation for the early treatment of mental disorders without certification. He was himself at that meeting only for a few minutes, but he understood there was a full and long discussion, and that a resolution was passed that had a bearing on the question which, in the past at least, had been a vexed one, namely the supervision of such treatment in any newly-created places. The resolution passed, he understood, expressed the opinion that there should be no division in the supervision of the care and treatment of the mentally affected, but that it should be entrusted to the Board of Control, which at present supervised the institutions under the Lunacy and Mental Deficiency Acts. He took it that this might come before the Association in a more formal way on another occasion, but the General Secretary had reminded him that it would be of interest to the general body now. The wish was expressed that in communicating the resolution to the proper quarter it would be better for it to emanate from the Association as a whole, rather than from any of its committees. He had not the exact terms of the resolution, in the absence of the Chairman of the Parliamentary Committee, but its purport was as follows: "That in any projected legislation for the temporary treatment of mental disorders without certification, the supervision of such treatment should be carried out by the Board of Control."

The resolution was agreed to on the proposition of Prof. G. Robertson, seconded by Dr. J. F. Dixon.

ELECTION OF CANDIDATES FOR MEMBERSHIP.

The following were duly elected members of the Association:

PRICE, ALFRED EDWARD, M.D., M.S.Lond., M.R.C.S.Eng., Medical Superintendent, "The Flower House," Thanet Lodge, High Street, Bromley, Kent.

Proposed by Drs. T. B. Hyslop, F. H. Edwards, and H. J. Norman.

WILLIAMSON, DAVID HARDIE, M.B., Ch.B.Edin., Assistant Medical Officer, Woodilee Asylum, Lenzie.

Proposed by Drs. H. Carre, A. M. Dryden, and A. Dick.

ROLLINS, ERNEST EDWARD, M.B., B.Ch.Dubl., Second Assistant Medical Officer, Graylingwell Mental Hospital, Chichester. Lieut. R.A.F. Medical Service.

Proposed by Drs. H. A. Kidd, S. Nix, and R. Worth.

LOGAN, FREDERICK COLQUHOUN, M.B., Ch.B.Glasg., Assistant Medical Officer, County Asylum, Prestwich. *Address:* County Mental Hospital, Prestwich, near Manchester.

Proposed by Drs. D. Orr, Bedford Pierce, and R. Percy Smith.

GASPARINE, JOHN JONES, M.R.C.S., L.R.C.P.Lond., D.P.H., Assistant Medical Officer, Horton Mental Hospital, Epsom, Surrey.

Proposed by Drs. J. R. Lord, N. Roberts, and E. S. Litteljohn.

RICHES, REGINALD GEORGE, M.R.C.S., L.R.C.P.Lond., Assistant Medical Officer, Horton Mental Hospital, Epsom, Surrey.

Proposed by Drs. J. R. Lord, N. Roberts, and E. S. Litteljohn.

RODGER, KENNETH MANN, M.B., Ch.B.Glasg., Assistant Medical Officer, Horton Mental Hospital, Epsom, Surrey.

Proposed by Drs. J. R. Lord, N. Roberts, and E. S. Litteljohn.

PAPER.

"The Genetic Origin of Dementia Praecox," by Sir FREDERICK MOTT, K.B.E., M.D.Lond., F.R.S.

It was illustrated by micro-photographs and drawings.

The PRESIDENT said it was to be regretted that the audience that morning was not larger. All present had enjoyed this most interesting thesis, which was full of importance, and when they had leisure to read and ponder it, they would see in it matters of grave import in their treatment of mental disorders. In fact—especially in regard to Sir Frederick's earlier remarks—one would be compelled to revise some misconceptions very materially, *i.e.*, the way in which such disorders were grouped, and the way in which the subjects were taught to students. He asked whether Sir Frederick considered that the dictum of Hughlings Jackson as to the latest faculties developed being the first to go was a progressive fact. In other words, as era succeeded era—if era expressed a sufficiently long time—would those more recently developed structures assume a greater degree of stability?

Dr. J. F. DIXON said Sir Frederick Mott laid much stress on the fact that strain, without being associated with a poor heredity, did not cause a breakdown in the individual; then he proceeded to mention the large number of Serbian prisoners who had undergone all kinds of stress and strain, and only 5 of 10,000 developed insanity. He also mentioned the women in the North of France. The speaker therefore asked whether there was a history of absence of insanity in those populations, and, if so, whether that would account for the freedom from mental disease among them.

Dr. MENZIES asked whether the Betz cells were affected. If not, that was a serious source of objection, as those cells were analogous to new cortex. They were a late phylogenetic and ontogenetic development, therefore they ought, on Sir Frederick Mott's theory, to be affected in primary dementes. The primary dement did not get ordinary paralysis, though he might have absence of movement from the afferent side. If sufficiently stimulated he was able to walk. The Betz cells were not myelinated until long after birth.

Dr. J. CARSWELL, after expressing in well-chosen words his sense of gratification regarding the paper they had just heard, referred to the occurrence rate of insanity among 10,000 Serbian soldiers who had had a long course of hardship and privation. For a number of years the speaker had worked out the proportion of persons between 15 and 45 in a great engineering district in Glasgow who had become insane for the first time, and the rate was exactly the same as among the Serbians referred to—5 in 10,000 per annum. The proportion was worked out before the war. There was therefore ample proof that the population was not a degenerate one, but, notwithstanding the stress and strain incidental to a working-class population, including alcohol, was very strong and virile. In districts, however, where dwelt a "sediment" population, with a high death-rate and much depravity, the proportion of first cases of certified insanity rose to 10 or 12 per 10,000 per annum. The impressions gained in long years of practice were valuable, though they could not always be put into figures; and, having seen in their homes for a number of years these cases of occurring insanity, he gave it as his conviction, forced upon him by experience, that this genetic element always confronted one. Stresses and strains had seemed so inadequate to explain some of the forms of insanity, particularly the great group which alienists had got into the habit of calling dementia praecox. Therefore his contribution was one of thanks to Sir Frederick Mott, and, from practical experience, a confirmation as to the comparatively slight incidence of insanity in a fairly healthy industrial population, and a rate about thrice as high among a population which, economically, had shown its unfitness to live before it became insane.

Dr. HARVEY BAIRD said that in view of the association of disease of the reproductive organs with mental disease he would like to hear whether Sir Frederick Mott thought various gland extracts, such as ovarian, were of any use. In the few cases of dementia praecox in which the speaker had used them practically no benefit had resulted. Was it because they were used too late?

Dr. J. MILLS also expressed his indebtedness for the fascinating lecture. He gathered that Sir Frederick attributed much of the condition dementia praecox to the defective development of the supra-marginal layers of the cortex and failure of

the endocrine glands. Were those combined failures necessary for the production of the disease, or if not, which had the greater influence?

Prof. GEORGE ROBERTSON said he desired to associate himself with the words of praise used by Dr. Carswell in regard to Sir Frederick Mott's lecture. It was a lecture which brought feelings of both admiration and despair—admiration at the extent of Sir Frederick's knowledge, and despair as to how those who gave instruction in psychiatry were to teach the subject in the future. Sir Frederick began his lecture by wiping off the slate all the varieties of insanity which members had been accustomed to teach to students, and which in the past were treated with respect by such men as Clouston, Savage and others. If this review was to be made, it was possible it would mean having to wipe off the slate every form of insanity which they had been regarding as an entity. But it had been recognised by them all—and he referred to it in his prefatory note in speaking of manic-depressive insanity—that all forms of insanity at their margins appeared to run into one another: that they struck one as akin to the colours in the rainbow: each colour was distinct in its own zone, but each tended to blend into the next. Another point which upset him, yet interested him greatly, was the following: According to Sir Frederick, it was not the brain one looked to as being the cause of insanity: there were other parts of the body, perhaps more important, which caused the mental condition; and in this respect he had always been interested in the observation of Pinel, who stated in his book on insanity that its cause was in the intestinal tract; he did not lay stress on the changes in the brain. Pinel believed insanity arose through some changes in the abdominal organs. Probably the first person who drew attention to changes in the brain was he whose centenary had been celebrated in Paris—Bayle—who, at his mental hospital, performed a *post-mortem* examination on every case which died of insanity, and observed the changes in the meninges and the character of the brain in general paralysis. He was the first pathologist who drew attention to the pathological changes in the nervous system as being the cause of the mental systems. He said he was not in a position to criticise the observations Sir Frederick had just made, and he did not presume to do so. There were one or two observations he made with regard to the changes which took place in the higher areas of the brain, and, associated with them, changes in the testes. He, the speaker, did not think those two regions were strictly comparable. Sir Frederick said that the realms of the nervous system most apt to become diseased were those which were most complicated and most voluntary, and therefore, on that account, disorder took place in the higher realms of consciousness. But he would point out to Sir Frederick that the organs of sex were certainly not the most complicated, nor the last to be formed, nor the least firmly established. Philogenetically they were the very earliest. Secondly, Sir Frederick indicated on the diagram the limited area of the nervous system, from which, ultimately, the principal portions of the brain developed. There were millions of nerve cells in the brain, and the lecturer pointed out the enormous proliferation in these regions had probably exhausted the original energy of these cells and predisposed to disease, on account of this proliferation of nerve cell. He would ask Sir Frederick to consider this fact—that once these cells were produced, no further proliferation took place in them. On the other hand, the cells of the other tissues of the body went on proliferating for a hundred years. Therefore the amount of proliferation which took place in some of the meander tissues of the body might very much exhaust the vital energy than did the changes which took place in the brain, because there, when once, shortly after birth, the cells were formed, they never proliferated again. He could speak for a long time on the points the lecture had raised, but he would be content with making those few observations, and again thank Sir Frederick for his most interesting address.

Sir FREDERICK MOTT, in reply, said the Serbians were a peasant population, and nationally they had had a very rough time for a long time past. And he thought the Serbians did not take so much care of their lunatic imbeciles as we did ours in this country. He doubted whether they had asylums, therefore natural selection and the survival of the fittest had proceeded there in a proper manner. With regard to the women in northern France, what he said was that there was no increase of lunacy among them. In the Serbian Army those who were left must have been very hardy; they had stood the stress of many years of fighting, and it was likely that the imbeciles and epileptics must have been wiped

out long ago. But the important point was, that those 10,000 were like the people he spoke of whom one could hit on the head and give them a good deal of alcohol without making them insane. Even the 5 out of the 10,000 who were insane probably had some mental defect which they had inherited. He believed that was also the opinion of Dr. Lewis Bruce, Dr. Stanford Read and others who gave evidence before the Shell-shock Enquiry. In answer to Dr. Menzies as to the affection of the Betz cells, they very often escaped—at any rate they did not show the same change which was found in the other cells. The myelination showed that those cells were, ontogenetically, of earlier development than the rest of the cortex. There was myelination in all the projection centres. The sensory-motor cells must be myelinated before the association cells, because it was only at birth that an individual could have a simple sensation; afterwards they got linked up with perceptions. The Betz axons took time to develop into the final common path. The optic radiations showed myelination; it was the whole principle of Flexner's theory. He, the speaker, could have shown the members a picture of a dog's brain in which the myelination was much more developed in ten days than took place in the human brain in three months. It had to be remembered that the cell nourished itself; it was not nourished. It was like the case of an individual who might have food put before him but might be unable to digest it. He did not anticipate any improvement in the kind of cases under discussion from the administration of any the gland extracts. The Harmers had sent over from America much testicular extract, and Sir Frederick wrote that clearly the interstitial cell constituents must be included in the powder, for unless the testes of developed animals were used there could be no good. Harmers then sent some material which had been prepared in that way, but from its use he had not been able to trace any real benefit, though some of the cases had been a little stimulated. He regarded the disease as a cell inadequacy, for the same reason that the subjects of it could not resist. If one took a large industrial population, such as Dr. Carswell had spoken of and worked amongst, *i.e.*, under 45 years of age, it was a very good type for generalising upon. The persons under discussion had a low vital energy, and many developed tuberculosis, or some chronic disease, because they were very deficient in resistance, and he doubted whether anything would make that better. This was not a disease which was limited to civilised or to poor people; it existed in all parts of the globe where *homo sapiens* lived. One could not tell the difference between the brain of a cannibal and that of a civilised person. It had been thought that the brain of the former would be found to be of low convolutional pattern and of lesser weight, but Aohlbrudde came back from his researches with the humiliating confession that their brains weighed more than that of the average European. It was not sufficiently remembered that these processes had been going on for millions of years. The Piltdown skull was probably a type between *homo sapiens* and the higher anthropoid apes. It had been shown that this was an enormous development from relatively few cells, and that this was why there was a tendency to degeneration of this highest level. With regard to the endocrine glands, there was no doubt that the endocrine system played a most important part in connection with the vital activities of the whole body. The medullary substance was sympathetico-tonic. He had examined 100 specimens of suprarenal gland, and changes were found there, and though it might play an important part, he did not think it was a primary condition in the disease. Certainly in the case of the thyroid there was that evidence, because it was essential for the development of the brain, and also for its proper functioning. In cases of hypothyroidism he had found the cells of the brain deficient, and even complete absence of the basophil substance, which he regarded as kinetoplasmic substance, and the slowness of thought and action was characteristic of this disease. He asked members to remember the three levels. There was a release of higher functions, and an over-action of the lower, which Hughlings Jackson said was the most important cause of the symptoms. The thyroid gland was the most helpful of all the glands in the treatment of disease, because the thyroid secretion originally went into the alimentary canal, therefore it could be absorbed; whereas with the other glands, when given by the mouth, one did not know what happened to them. It might be well to give them by the rectum or the vagina. He wished to thank Dr. Carswell and Prof. Robertson for their appreciative remarks. The latter stated that the reproductive organs were the oldest; that was true, whereas the structures he, Sir Frederick, had been referring to were comparatively recently developed. He had been sug-

gesting reasons why that recent structure should break down early, because if there was failure of nuclear proliferation of the neuroblasts one did not get the patient unable to walk and living a vegetative existence; he was an imbecile. The part arrested was the latest developed phylogenetically. There were people who became old sooner than others without apparent reason; in others the mind became affected. Apart from this disease there was evidence of defective metabolism, and there were present lipoid granules instead of Nissl granules in the cells. On this question of durability he thought stress came most upon the latent structures and they were unable to bear it, and the weakness was accordingly brought out in the highest level first, therefore symptoms arose in consequence of this loss of control. In primitive races it was there, but it depended on the recovery of social experience and religions. All that, however, was secondary to the dementia. The typical form of the disease was dementia simplex—loss of mind—and that he associated with degeneration of the nerve cell, which could not be repaired. Many of the symptoms met with might depend on the hypo-function, and they might get better. He was very glad to have had the matter discussed fully; he quite appreciated Prof. Robertson's criticisms; but when people said there was no material basis for the disease he thought the time had come to protest.

THE THIRD MAUDSLEY LECTURE, BY SIR MAURICE CRAIG, C.B.E.,
M.D., F.R.C.P.

After the luncheon interval the meeting re-assembled at the old County Hall, Spring Gardens, London, S.W., to hear Sir Maurice Craig deliver the Third Maudsley Lecture, the subject being—"Some Aspects of Education and Training in Relation to Mental Disorder."

In introducing the Lecturer, the PRESIDENT said he did not propose to intervene for more than a brief moment between those assembled and the lecture they were all so much looking forward to hear. It was, however, his privilege to remind them that the man, after whose name—though not at his request—this Lectureship had been most appropriately called, was one of the foremost, perhaps the foremost neuro-psychiatrist of his day, and, as Medical Superintendent of Cheadle Royal, Dr. Maudsley greatly added to the fame of that mental hospital. His professional knowledge and skill were great, to which was added a philosophical bent which stamped his many writings, and raised the important books of which he was the author from that plain in which, as the result of subsequent research, so many scientific works find oblivion, into classics and masterpieces which will endure. His interest in the study and treatment of mental disorders was so profound that many years before his death he stripped himself of most of his fortune, which he handed to the London County Council—whose County Hall has been kindly lent for this occasion—in order to enable them to found the hospital now known as the Maudsley Hospital, which is in course of being opened for the purposes Maudsley intended, and where Sir Frederick Mott did so much work during the war on behalf of the soldiers. This gift of money received a substantial addition under Dr. Maudsley's will, in which was also a bequest to the Medico-Psychological Association which enabled it to establish this Annual Lectureship. They were very fortunate this year to have secured the services of Sir Maurice Craig, and he now called upon him to deliver the third Maudsley Lectureship.

At the completion of the Maudsley Lecture, the PRESIDENT congratulated Sir Maurice Craig on his most excellent address, and Sir MAURICE CRAIG suitably replied.

SOUTH-EASTERN DIVISION.

THE SPRING MEETING of the South-Eastern Division was held by the courtesy of Dr. F. R. P. Taylor and the Visiting Committee at the East Sussex County Mental Hospital, Hellingly, Sussex, on Tuesday, May 2nd, 1922.

Among visitors present were Miss C. G. K. Scovell (a member of the Committee), and Sir C. O'Brien Harding (a past member of the Committee), Dr. Graham (Specialist, Neurological Clinic at Brighton), Mr. R. C. McQueen, Dr. T. Turner, Dr. Hamilton (D.C.M.S., Brighton), and Rev. H. R. White (Chaplain).

At the close of the luncheon a vote of thanks to Dr. Taylor and the Committee was proposed by Dr. C. Hubert Bond and carried with acclamation. Dr. Taylor replied on behalf of himself and the Committee.

The General Meeting was held at 2.30 p.m., Dr. C. Hubert Bond in the Chair. The Minutes of the last meeting were taken as read and confirmed.

Dr. Noel Sergeant and Drs. John Brander, F. H. Edwards, J. G. Porter Phillips and F. R. P. Taylor were unanimously elected Hon. Divisional Secretary and Representative Members of the Council respectively for the year 1922-23.

Drs. Cedric W. Bower, A. Helen Boyle and J. N. G. Nolan were elected members of the Divisional Committee of Management.

The following gentlemen were elected as Ordinary Members:

BACK, FREDERICK, M.R.C.S., L.R.C.P.Lond., Junior Assistant Medical Officer, East Sussex County Mental Hospital Hellingly, Sussex.

Proposed by Drs. F. R. P. Taylor, J. N. G. Nolan, and Noel Sergeant.

DUNCAN, WILLIAMS ARTHUR, M.B., Ch.B.Edin., Second Assistant Medical Officer, East Sussex County Mental Hospital, Hellingly, Sussex.

Proposed by Drs. F. R. P. Taylor, J. N. G. Nolan, and Noel Sergeant.

DUNLEA, JOHN G., M.B., B.Ch., N.U.I., Assistant Medical Officer, Kent County Mental Hospital, Maidstone.

Proposed by Drs. H. Wolseley-Lewis, W. E. Collier, and Noel Sergeant.

GRAHAM, MALCOLM FRANK DOUGLESS, B.A., M.D.Toronto, M.C.P.&S. Ontario, Specialist at Neurological Clinic, Ministry of Pensions, Brighton, 3, Whitehall Place, London, S.W. 1.

Proposed by Drs. F. R. P. Taylor, J. N. G. Nolan, and Noel Sergeant.

MCCORD, ROBERT N. B., M.B., B.Ch.Belf., Assistant Medical Officer, Brookwood Mental Hospital, Surrey.

Proposed by Drs. J. A. Lowry, W. Brooks Keith, and Noel Sergeant.

MARTYN, PIERCE PATRICK, M.B., B.Ch., R.U.I., Assistant Medical Officer, Kent County Mental Hospital, Maidstone.

Proposed by Drs. H. Wolseley-Lewis, W. E. Collier, and Noel Sergeant.

STEWART, FRANCIS HUGH, M.A., D.Sc.St.And., M.D.Edin., Major I.M.S. (retired), Assistant Medical Officer, County Mental Hospital, Cambridge.

Proposed by Drs. M. A. Archdale, A. F. Reardon, and Noel Sergeant.

The invitation of Dr. A. Helen Boyle to hold the Autumn Meeting, 1922, at Hove was accepted with many thanks. (*Note.*—This acceptance has been postponed until Spring, 1923.)

PAPERS.

"Present Treatment of Incipient Insanity in East Sussex," by Dr. J. N. G. NOLAN. This paper was supplemented by a few remarks from Dr. HARPER and Dr. GRAHAM concerning the work at the Clinic at Brighton, and by Dr. TAYLOR, who spoke of the efforts that were being made to inaugurate a central clinical laboratory that would serve the needs of the three Sussex and two Kent County Mental Hospitals. Dr. C. HUBERT BOND expressed his appreciation of these communications and opened the discussion, in which the following members and visitors participated: Sir WILLIAM J. COLLINS, Sir C. O'BRIEN HARDING, Drs. COLLINS, BAIRD, BOWER, and McDOWALL.

"Lilliputian Hallucinations," by M. LEROY. This paper was read by Dr. G. W. B. JAMES, who mentioned one case which he had met with in his own practice. Sir WILLIAM J. COLLINS also mentioned an extremely interesting case, in which he attributed these "lilliputian hallucinations" to the effect of an early cataract on an abnormally imaginative temperament.

Owing to the lateness of the hour it was impossible to continue the discussion, but the communication is to be printed in the *Journal of Mental Science*, with a suggestion that readers shall send to the Journal a short account of any similar case, or cases, coming under their observation.

The members were then entertained to tea, which brought to its conclusion another pleasant and instructive meeting.

SOUTH-WESTERN DIVISION.

THE SPRING MEETING of the Division was held, by the kind invitation of Dr. Peachell, at the Dorset County Mental Hospital, Herrison, Dorchester, on Friday, April 28th, 1922.

General Gordon Steward, Major Gundry, Rev. Slemeek, and Drs. Ash, Gowring, Rodd and Smerdon were present as visitors.

Dr. W. F. Nelis was voted to the chair, and the minutes of the last meeting were read and signed.

Dr. G. N. Bartlett was elected Hon. Divisional Secretary.

Drs. T. S. Good and J. G. Soutar were elected Representative Members of Council.

Drs. G. E. Peachell and E. Barton White were elected members of the Committee of Management, and Dr. J. E. P. Shera was elected to that Committee in place of Dr. Stanford Read, who has left the Division.

The date of the Autumn Meeting was fixed for October 27th, 1922, that of the Spring Meeting April 26th, 1923. The place of the Autumn Meeting was left to the Secretary to arrange.

Dr. G. E. PEACHELL then read his paper, "A Case of Insanity associated with Pregnancy and previous Exophthalmic Goitre." This paper provided much interesting matter, both clinical and pathological, and was emphasised by the wet specimens and sections shown. Sections of thyroid, ovary, kidney, pituitary body and suprarenal glands were exhibited on the screen, and the interdependence of the various internal secretions was debated.

Drs. ASH, R. EAGER and GOWRING took part in the ensuing discussion.

Dr. E. BARTON WHITE read his paper on *Bacillus coli* infection in mental hospitals, and illustrated the life-history and relationships of the *Bacillus coli*, and possible sources of infection with this organism by means of the common fly, cockroach, etc., as proved by experiment.

Dr. W. F. NELIS moved a vote of thanks to General Gordon Steward, the Chairman of the Mental Hospital Committee, for his welcome to and entertainment of the members, and Dr. G. E. Peachell was also accorded a hearty vote of thanks for his kind hospitality and the provision of a most interesting programme.

NORTHERN AND MIDLAND DIVISION.

THE SPRING MEETING of the Division was held at the Derby Borough Mental Hospital, through the courtesy of Dr. J. Bain, on Thursday, April 27th, at 2 p.m.

The members were shown over the Hospital in the forenoon and were entertained to lunch by Dr. Bain, who was cordially thanked for his hospitality.

The minutes of the last meeting were read and confirmed.

The following candidates were balloted for and duly elected:

JANE ELIZABETH HAY, M.B., Ch.B., D.P.H.Edin., Assistant Medical Officer, Storthes Hall Asylum, Huddersfield.

Proposed by Drs. T. S. Adair, J. E. Kitchen and J. R. Gilmour.

GILBERT MALISE GRAHAM, M.B., Ch.B.Edin., Assistant Medical Officer, Derby Borough Mental Hospital, Rowditch, Derby.

Proposed by Drs. J. Bain, J. R. Gilmour and G. Mackie.

Dr. J. R. Gilmour was elected Hon. Secretary to the Division, and Drs. T. Stewart Adair and J. V. G. B. Tighe Representative Members of Council for the ensuing year.

PAPERS.

"On the Behaviour Changes Supervening on Encephalitis in Children," by Dr. G. A. AUDEN.

"Notes from a Psycho-therapeutic Clinic," by Dr. J. E. MIDDLEMISS.

"Colloidal Gamboge Reaction." Drs. RIDDEL and STEWART gave a description, with clinical results, of the technique of this reaction in the cerebro-spinal fluid, which they had recently introduced at Whittingham.

Interesting discussions followed the reading of these papers.

DEMONSTRATION.

Drs. ORR and STURROCK showed lantern-slides illustrating the effects of disturbances of the sympathetic mechanism on the localisation of toxic-infective lesions in the brain. After the cervical sympathetic is divided in the rabbit's neck and a general infection subsequently produced, both hemispheres are affected, but the lesions are more intense on the divided side. Nerve-cell degeneration is found on the cornu ammonis, the caudate nucleus, the amygdaloid nucleus, the pyriform lobe, and in the cerebral cortex. All those areas derive their blood supply from

the pial vessels, which are under sympathetic control. In addition to the nerve cell changes, there were found lipoid secretion from the choroid plexus and ependymal ventricular lining, periarteritis in the head of the caudate nucleus, and a generalised hyaline change in the contents of the vessels with perivascular oedema.

Dr. STURROCK followed with a short note, pointing out how these findings could account for certain mental symptoms in cases with infections of various organs.

An interesting debate followed.

Dr. E. S. SIMPSON read a paper "On the Nursing Question," with a view to introducing a discussion on this topic, but, owing to the lateness of the hour, the discussion was postponed until the Autumn Meeting of the Division.

SCOTTISH DIVISION.

THE SPRING MEETING of the Scottish Division was held in the Hall of the Royal Faculty of Physicians and Surgeons, Glasgow, on Friday, March 17th, 1922.

Prof. Geo. M. Robertson was called to the chair.

The minutes of last Divisional Meeting were read and approved.

Drs. D. Ross and N. T. Kerr were unanimously elected Representative Members of Council for the ensuing year, and Dr. W. M. Buchanan was elected Divisional Secretary.

The following candidates after ballot were admitted to membership of the Association.

(1) Marion Cameron Alexander, M.B., B.Ch.Belf., Assistant Physician, Royal Asylum, Edinburgh. (Proposed by Drs. Ross, Robertson, and Macleod.)

(2) Percy Banbury, M.R.C.S., L.R.C.P.Lond., Assistant Physician, Crichton Royal Institution, Dumfries. (Proposed by Drs. Easterbrook, Hotchkis, and Buchanan.)

(3) James Dickson, M.C., M.B., Ch.B.Edin., Assistant Physician, Crichton Royal Institution, Dumfries. (Proposed by Drs. Easterbrook, Hotchkis, and Buchanan.)

(4) James Watson Kernohan, B.Sc., M.B., B.Ch., D.P.H.Belf., Clinical Pathologist, Crichton Royal Institution, Dumfries. (Proposed by Drs. Easterbrook, Hotchkis, and Buchanan.)

(5) John Campbell Smith, M.A.St. And., M.B., Ch.B.Edin., Assistant Physician, Crichton Royal Institution, Dumfries. (Proposed by Drs. Easterbrook, Hotchkis, and Buchanan.)

The SECRETARY reported that, in terms of remit from last meeting, the Business Committee had met and considered the question of further action with regard to the Division's amendments to the Asylum Officers' Superannuation Act. The Committee, while realising that there was little likelihood of obtaining legislation in the near future, resolved that the matter should not be allowed to drop. They recommended that a reasoned memorial embodying the amendments should be prepared and presented to Royal Asylum Boards, District Boards of Control, and Scottish Members of Parliament. The meeting endorsed the action of the Business Committee, and instructed the Secretary to circulate draft copies of the memorial amongst the members of the Division for review and suggestions, so that the document may be finally prepared and presented with as little delay as possible.

During a discussion on the Nurses' Registration Act it was pointed out that the Regulations for the Nursing Certificate of the Association had been criticised by members of the Scottish Nursing Council in respect that no provision was made for representatives of the nurses taking part in the examination of candidates. After a very full discussion the meeting unanimously agreed to recommend to the Council "that it should be made possible for matrons to take part, not only in the training in practical nursing, but also in the examination in practical nursing, of candidates for the Nursing Certificate of the Association." The Secretary was instructed accordingly.

Dr. IAN D. SUTTIE's paper, "Critique of the Theory of Herd Instinct," copies of which had been circulated, gave rise to an interesting and instructive discussion, taken part in by Drs. T. C. Mackenzie, G. D. McRae, J. H. Macdonald, D. Ross, David Yellowlees, and the Chairman.

A vote of thanks to the Chairman for presiding terminated the business of the meeting.

IRISH DIVISION.

THE SPRING MEETING of the Irish Division was held on April 6th, 1922, at Hampstead and Highfield Private Mental Hospitals, by the kind invitation of Drs. H. and W. Eustace.

Dr. H. Eustace presided.

The minutes of the last meeting were read and approved.

A letter of thanks was received from Dr. Colles, K.C., acknowledging the resolution passed at last meeting and sent to him.

The resignation of Dr. Hetherington, of Londonderry, was accepted with regret.

The meeting next proceeded to elect an Hon. Secretary and two Representative Members of Council. Dr. L. Gavin and Dr. W. N. Eustace were named scrutineers, and the Chairman declared that Dr. R. R. Leeper was re-elected Hon. Secretary and Drs. H. R. C. Rutherford and P. O'Doherty were elected Representative Members of Council for the ensuing year.

The meeting next proceeded to elect an ordinary member of the Association, and, on a ballot being taken, Patrick Daniel Sullivan, F.R.C.S., L.R.C.P.Irel., Medical Superintendent, Verville, Clontarf, Dublin, was elected an ordinary member.

The following dates were fixed for the meetings of the Division for the ensuing year:

Summer Meeting to take place at Mullingar Asylum on July 6th, 1922 (*if circumstances permit*).

Autumn Meeting, November 30th, 1922.

Spring Meeting, April 26th, 1923.

Dr. H. R. C. RUTHERFORD proceeded to read his communication on "The Nature of the Psychopathic Inheritance."

The paper was discussed by all the members present. Dr. H. M. EUSTACE gave his experiences of the treatment of the insane by thyroid extract as originally carried out at Morningside Asylum by the late Sir Thomas Clouston.⁽¹⁾ All of the speakers congratulated Dr. Rutherford upon the good results he had achieved and for the very interesting communication he had brought before the meeting. Dr. RUTHERFORD having replied to the various points raised by the speakers, a cordial vote of thanks to Drs. H. and W. Eustace for their kindness and hospitality in entertaining the Division was passed unanimously.

PARLIAMENTARY NEWS.

April 11th, 1922: Ex-service patients in West Ham Asylum.—Mr. LEONARD LYLE asked the Minister of Pensions to state the actual maladies from which the 61 ex-service men now in West Ham Asylum were suffering; whether there was any hope that they might eventually regain their normal condition; whether they were periodically examined to that end; whether any of them were disabled; if so, how many; whether they were local men; if so, how often were their relatives allowed to see them; if not, would he have them transferred to a place nearer their own home; and whether any of them were untraced.—Sir A. MOND replied: There are at present 55 service patients in the West Ham Mental Hospital whose cases may be classified as follows: dementia praecox 23, melancholia 11, mania 4, delusional insanity 6, general paralysis 5, epilepsy 3, secondary dementia 3. About 20 per cent. of these men may be expected to recover, and all cases are periodically examined. Two of the patients are disabled and both are local men. Relatives are allowed to visit on any day, and there is only one case in which no relatives can be traced.

April 12th, 1922: Discharges from asylums.—Mr. ROBERT RICHARDSON asked the Minister of Health whether, in the matter of dealings with applications for the discharge of patients from asylums, the question was decided by the local visiting committees sitting fortnightly at the asylum and in touch with its inmates, or whether any influence was exercised in this respect by the central London County Council Committee sitting at Arundel Street; and what were the functions pertaining to the latter body.—Sir A. MOND replied: Under the L.C.C. (General Powers) Act, 1915, all the duties of a visiting committee under the Lunacy Acts,

(1) The method was devised by Dr. L. C. Bruce.—EDS.

1890 to 1911, in respect of the County of London, are transferred to the L.C.C., but stand referred to the Asylums and Mental Deficiency Committee, which meets not at Arundel Street, but at Spring Gardens. All applications for the discharge of patients from the London County Mental Hospitals are considered and dealt with at each hospital by the members of visiting sub-committees appointed by the Asylums and Mental Deficiency Committee for the management of the hospital and by them alone.

May 9th, 1922: The Lunacy Bill.—The Lunacy Bill to amend the law relating to Chancery lunatics, which has already passed through all its stages in the House of Lords, was read a second time. This measure substitutes a single Master in Lunacy and an assistant for two Masters in Lunacy as at present. Under Clause 2 the provisions of Sections 133 to 143 of the Lunacy Act, 1890, relating to vesting and other orders as amended by subsequent enactments, are declared to apply to criminal lunatics. The remainder of the Bill deals with legal matters affecting the property administration of lunatics.

June 13th, 1922: The case of Ronald True.—Mr. STANLEY HOLMES asked the Home Secretary whether he had any statement to make regarding his action in this case. Mr. SHORTT (Home Secretary) said he understood that his action was criticised on two grounds: (1) that he need not have instituted any inquiry into the mental condition of True; and (2) that having received the report certifying him insane he need not have acted upon it. The section under which he acted—Section 2 Sub-section 4 of the Criminal Lunatics Act, 1884—stated:—

"In the case of a prisoner under sentence of death, if it appears to a Secretary of State, either by means of a certificate by two members of the visiting committee of the prison or by any other means, that there is reason to believe such person to be insane, the Secretary of State shall appoint two or more legally qualified medical practitioners, and such medical practitioners shall forthwith examine the prisoner and inquire as to his sanity, and after such examination and inquiry such practitioners shall make a report in writing to the Secretary of State as to the sanity of the prisoner, and they or the majority of them may certify in writing that he is insane."

These doctors gave evidence at the trial, as did two other medical men, to the effect that in their judgment the prisoner was certifiably insane. What were the grounds for an inquiry in this case? He (Mr. Shortt) had the reports of two prison doctors who had had the prisoner under close observation for two months. There were, in fact, two issues which were quite distinct. The first was—Was the prisoner at the time he committed the offence insane within the limit of the doctrine of criminal responsibility as laid down by the courts? That was a question on which the jury gave an answer. The further question which arose under the Act was whether the prisoner at the time of the statutory inquiry, being then under sentence of death, was insane within the meaning of the ordinary law so that he could be certified and removed to an asylum. That question was left by the Statute to the unfettered judgment of two or more medical men, and in instituting such an inquiry he (the Home Secretary) was in no way running counter to the views of the judges. On the contrary, the judge who tried the case in the first instance, in reporting that he had passed sentence of death, drew his special attention to the medical evidence as affording matter for his (Mr. Shortt's) further consideration; while at the conclusion of the appeal, which was dismissed, the Lord Chief Justice said there were certain powers vested in the Home Secretary which, in a proper case, were always exercised. If under these circumstances he had neglected to put the provisions of the Statute into operation by neglecting a medical inquiry he would have been guilty of a flagrant breach of public duty, and when challenged he would have had no defence. On the question whether he was bound to act on the medical report, Mr. Shortt said that the principle that an insane man should not go to execution had been enshrined in the law of this country for at least 300 years. Mr. Shortt concluded his statement by quoting a number of legal authorities, including Sir Edward Coke, for the legality of the action he had taken.

Mr. STANLEY HOLMES failed to obtain leave to move the adjournment of the House on the matter, only 28 Members rising in support.

June 24th, 1922: The case of Ronald True.—Mr. KENNEDY asked, on June 15th, whether the attention of the Home Secretary had been drawn to the reported statement of Mr. Justice Avory, when charging the Grand Jury at Devon Assizes,

that he very much doubted if the recrudescence of crime experienced after the war would continue to abate if the infliction of penalties of the law was to be left to the discretion of experts in Tiarley Street; and whether, seeing that such a statement indicated the need of a clear definition of the law relating to criminal lunacy, it was proposed to introduce legislation to remove any ground of judicial misunderstanding or divergence of judicial opinion.—Mr. SHORTT replied that he had seen a newspaper report of the learned judge's remark. As regards the latter part of the question the matter was one for careful consideration, but he was not prepared at present to say that legislation was either necessary or desirable.

Sir DONALD MACLEAN inquired whether the Home Secretary would consult the Leader of the House as to what opportunity would be given to the House to discuss this matter, not merely in relation to the particular case, but on the general question of principle involved.—Mr. SHORTT said he would consult Mr. Chamberlain.—At a later date Sir DONALD MACLEAN pointed out that the subject could not be taken on the estimates, as legislation might be required, and that could not be raised on the estimates.—Mr. CHAMBERLAIN replied that in the present state of public business he did not see how it would be possible to find a day for supplementary subjects, especially if the House was to rise in anything like good time, having regard to the probability that it would have to meet in the autumn in respect of Irish matters. On a further question, Mr. CHAMBERLAIN said he thought it might be possible for the subject to be discussed on a vote in Committee of Supply, provided that no mention were made of legislation.

In reply to another question Mr. SHORTT said that since the Court of Criminal Appeal was established in 1908 the sentence of death had been respited and the prisoner removed to Broadmoor after statutory inquiry in eleven cases. He knew of only one case similar to that of True—namely, the case of Townley in 1864—when the prisoner was afterwards certified sane. In that case the sentence of death which had been respited was commuted to one of penal servitude for life, and the man was removed from the asylum to prison. In no recent case had the prisoner been certified sane under Section 3 of the Criminal Lunatics Act, 1884. There was nothing in the law to prevent a man being executed after he had recovered his sanity, but whether it was done was another matter. Mr. Shortt said that in eight of the eleven cases that had occurred since 1908, either the judge or the Court of Criminal Appeal, or both, while satisfied that the verdict of the jury was correct and that the prisoner had been properly found guilty of murder and not insane, in the legal sense, when he committed the crime, nevertheless suggested that it was desirable that further inquiry under the powers vested in the Home Secretary should be made as to the mental condition of the prisoner.

RETIREMENT OF SIR JOHN MACPHERSON, C.B.

SIR JOHN MACPHERSON, C.B., M.D., F.R.C.P., who recently retired from the position of His Majesty's Commissioner of the General Board of Control, and is shortly going to Sydney as Professor of Psychiatry, was on June 6th presented with a testimonial by professional and other friends in recognition of his long and useful services devoted to the interests of the insane. The ceremony, which took place in the Hall of the Royal College of Physicians, Queen Street, Edinburgh, was largely attended. Professor Sir Robert Philip, President of the Royal College of Physicians, presided, and among others present were Lord Polwarth, Lord Salvesen, Sir David Wallace, President of the Royal College of Surgeons, and Lady Wallace; Sir James Hodsdon, Sir George McCrae, Sir David Paulin, Sir John Rankine, Dr. John Fraser, Dr. J. Crawford Dunlop, Registrar-General; Mr. R. Addison Smith, C.V.O., Mr. H. M. Cadell, of Grange, Dr. H. C. Marr, Commissioner, and Mr. A.D. Wood, secretary, General Board of Control.

The CHAIRMAN said that Sir John Macpherson was one of their most beloved Fellows of that College, a man to whom Fellows in time of difficulty went for advice, feeling sure that they would have shrewd, tactful, wise counsel.

Lord POLWARTH, in making the presentation of a piece of plate and a cheque to Sir John Macpherson and a diamond brooch to Lady Macpherson, said it was with a sense of real pleasure that, after reading a somewhat long list of names, he found

the name of one who really and most sincerely deserved the honour which had been accorded to him the other day. (Applause.) They congratulated Sir John and Lady Macpherson on the honour which had so rightly been awarded by His Majesty. He first knew Sir John Macpherson when he became Commissioner in Lunacy in 1899. Prior to that he had acted as Medical Superintendent of the Stirling District Asylum, Larbert, his services to Scottish lunacy extending to a period of nearly forty years. During his long public service Sir John Macpherson was actively associated with the many reforms which had taken place to improve the care of the insane and advance the treatment of mental disease. He was not retiring into oblivion or idleness on a pension well earned ; he was going out to a new country to give that country the benefit of his great experience acquired in the old country. They wished him a very happy time in Sydney, and a safe return. Sir John Macpherson had played a very important part in lunacy administration in Scotland, which he ventured to think for long and still was probably the best in any part of the world. They had seen of late much about alleged abuses of lunacy administration south of the Border. From many of these, he thought, they had been entirely free in Scotland, but certainly no one could have conducted his duties with a truer spirit of humanity and kindness and consideration than had been shown by Sir John Macpherson. (Applause.)

SIR JOHN MACPHERSON said it was impossible for him to express in adequate and suitable language the gratitude of his wife and himself for their great kindness. After referring to the services rendered by Lord Polwarth on the Board of Lunacy, he said his own connection with Scottish lunacy dated back to 1883, when as a youth of 23 he became an assistant medical officer in Stirling District Asylum. Shortly afterwards he went to Morningside under the then greatest living authority, Sir Thomas Clouston, whose memory as a master and teacher he revered. He drilled into his pupils that psychiatry was one of the most important branches of medicine, that mental disease was a physical disease, and that physical disease had its mental side. These facts were only now beginning to be realised. In the course of a professional experience of nearly forty years, he had, of course, witnessed many changes in the methods of care of the insane. He thought he might say that in that time their methods had been completely revolutionised. In his experience the greater number and the most important reforms in administration originated with and were carried out by the medical superintendents of Scottish mental hospitals. It was necessary, however, to qualify that statement lest some of his friends should become conceited, or lest he should expose himself to a charge of fulsome flattery. The reason why Scottish medical officers were able to originate and carry out reforms which not only transformed Scottish administration, but had spread from here over the civilised world, was that it happened, in the providence of God, that the original members of the General Board of Lunacy were so intellectually eminent as to be incapable of believing that wisdom in these matters was their own sole prerogative. They set the policy which had been faithfully adhered to down to the present day. They said, in effect, "Whatever project is advantageous we will encourage; on that which is doubtful we will reserve judgment; what is obviously wrong we will condemn." Under such conditions, with a practically unrestricted field for individual effort, Scottish genius so asserted itself that in this small and remote kingdom in Northern Europe the torch of reform has burnt brightly from time to time, and cast its rays over the whole world. (Applause.)

An indirect result of the wise policy of their predecessors was the invariably friendly relations which had existed for more than 60 years between the Central Board on the one hand and the various local authorities and the medical officers of mental hospitals on the other. Of course, in this, as in all human affairs, there must be differences of opinion, often sharp; but he was not aware that there had been as a result any personal animosity. Within that hall and in the precise circumstances in which he now stood he had listened at separate times to three of his predecessors returning thanks for presentations made to them. They all three testified to the cordial relations in which they stood with the medical and lay authorities in Scotland concerned with the care of the insane. With diffidence, and in all humility, he thought, in his turn, he might say the same. Co-operation in a real sense and for a common purpose explained this good feeling, which, unfortunately, did not always exist between Government Departments and the public.

With regard to the changes and reforms to which he had alluded, he could

imagine someone quite properly asking what results of a tangible nature had been achieved by them. It might be asked, for instance, "Has insanity decreased? Are we any nearer a knowledge of its nature, its causes, or a method of curing it?" He feared none of these questions could be answered in the affirmative. But he would ask them to consider three of the great advances and reforms in medicine and surgery—vaccination by Jenner, chloroform by Simpson, antiseptics by Lister. These discoveries did not abolish disease, but they diminished some of its most loathsome and most horrible features to the irreducible minimum. It was exactly the same thing that had been achieved by reforms in the care of the insane. By the hospitalisation of asylums, skilled nursing, open-air treatment, open-air work, and as great an extension of liberty as was consistent with actual safety, features that formerly were loathsome enough had become not unpleasant to look upon, suffering had been relieved, and life under abnormal conditions had been rendered more endurable. (Applause.)

Of the nature and causes of certain forms of insanity, those who had devoted their lives to investigation would be found most ready to admit how little was really known. Although insanity was not decreasing, although the recovery-rate in mental hospitals was very slightly but perceptibly decreasing, and although no preventive or curative measures had as yet been devised to combat it, the prospects were never more hopeful than at the present time. Throughout the whole field of scientific medicine constant advances were being made, many of them having a bearing on their subject. Some day—it might not be in their time—a light would be thrown upon problems which were now obscure. Even when that day came problems would remain presenting themselves, as now, under two aspects—a constant and a variable one. The constant was the insoluble problem of life; the variable was the view they chose to take of it. From their views of life all their civilisation had proceeded. It was the same with insanity. The constant was the problem of its nature and causes. From the variable had proceeded all the advances and reforms in its treatment, which had resulted in Scotland in such a uniformly high standard of excellence. (Applause.)

On the motion of Dr. MARR, a vote of thanks was accorded to the chairman; and on the call of Mr. A. D. Wood acknowledgment was made of the services of Dr. R. B. Campbell, medical superintendent, Stirling District Asylum, Larbert, who had acted as hon. secretary and treasurer.—*Scotsman*, June 9th, 1922.

PSYCHIATRY IN AUSTRALIA.

SIR JOHN MACPHERSON, C.B., Edinburgh, who lately retired from the post of Commissioner of the Board of Control for Scotland, has been offered, through the Agent-General for New South Wales, and has accepted for a period of three years, the post of Professor of Psychiatry in the University of Sydney. This Chair is the first of its kind in any university in Australia.

AMERICAN PSYCHIATRIC ASSOCIATION.

At the last meeting held at Boston, 1921, the American Medico-Psychological Association changed its name to the American Psychiatric Association. At the same meeting the *Journal of Insanity* became the *American Journal of Psychiatry*.

LONG GROVE MENTAL HOSPITAL, EPSOM.

The charges made by a witness against the staff of one of the most up-to-date mental hospitals in the United Kingdom, before the Departmental Committee appointed by the Ministry of Health to consider the allegations made against asylum administration contained in Dr. Lomax's *Experiences of an Asylum Doctor*, were soon broadcast by the Press, but, carrying out its usual inconsiderate attitude to mental hospital employees, the same publicity has not been given to rebutting evidence.

We are glad, therefore, to be able to record that at a sworn inquiry held by the Board of Control on April 24th and 25th, 1922, into these allegations, Long Grove Mental Hospital and its medical and nursing staff emerged triumphantly. The Commissioners, after a very searching investigation, came to the conclusion that the charges made as to cruelty against the attendants in the wards were untrue and had no foundation in fact. Referring generally to the allegations they conclude their report by stating—"Our task has been to decide whether his allegations are true, and as to their falsitude we have no shadow of doubt." We regret that the exigencies of space do not permit of us reproducing in its entirety this most interesting and instructive report.

OBITUARY.

JOHN TURNER, M.B., C.M.Aberd.

JOHN TURNER was born at Portsmouth on March 11th, 1860. He was the eighth child in a family of nine. One of his brothers, Sir George Turner, became famous for his work on leprosy and other diseases. He was at one time M.O.H. for Portsmouth, and afterwards became M.O.H. for the Transvaal and Medical Superintendent of the Leper Asylum at Pretoria. Turner graduated in Medicine at Aberdeen in 1883, and soon afterwards became a medical officer at Brentwood Asylum, in which institution he spent the whole of his professional career. During the greater portion of his service he occupied the position of Assistant Medical Officer, and succeeded the late Dr. George Amsden as Medical Superintendent in 1910. He became a member of the Medico-Psychological Association in 1890.

Turner had the spirit of the true scientist. He was extremely modest, had no desire for publicity, sought no honours, and was quite free from the modern disease of self-advertisement. He loved knowledge for its own sake, and was a patient, accurate and zealous scientific investigator. His passion for research soon became evident, and in 1888 we find what appears to be his first contribution to our Journal—a record of a case of post-febrile mental stupor. His investigation of this case reveals his unwavering adherence to the biological methods of research; he had but little sympathy with the modern psychological trend in psychiatry. The bibliography appended to this notice will indicate in some slight measure Turner's unflagging industry. These papers only include his contributions to the *Journal of Mental Science*. He wrote many others, and was a valued contributor to Aldren Turner's well known work on *Epilepsy*.

Dr. J. C. Shaw, of Goodmayes Asylum, an intimate friend of Turner, has supplied the following personal details of his character and interests: "With Dr. Turner others always came first; he was kindness itself to all classes and was much beloved by his patients and staff. There was hardly a subject on which he could not converse; he was a great reader of the classics and of fiction—especially detective stories. He never wasted a minute; he spent hours in the *post-mortem* room and the laboratory, but nevertheless knew all about his patients. He had numerous hobbies; he was an enthusiastic but not very competent golfer, a keen motorist, a skilled photographer and an antiquarian. During his later years he devoted much attention to antiquarian pursuits; he used his motor very largely to survey Essex for the purposes of his hobby, and this was his chief interest after he retired from Brentwood. He was especially keen on the "windmills" of Essex and had some intention of publishing a book on the subject. He left all his books, MSS. and other materials to the Southend-on-Sea and District Antiquarian Society, of which he was one of the founders."

Dr. Turner was not a strong man, and his extensive scientific contributions are all the more remarkable from the fact that he had to battle against ill-health for the last twenty years. As long ago as 1904 he was taken seriously ill when attending a congress in Canada as a delegate from England. It was hoped that after the severe illness which had brought about his retirement had cleared up, he would have had many years of rest and leisure. This was not to be, however, and he died on March 6th, 1922. Dr. Turner was married and his widow survives him, but he had no children.

One cannot help reflecting that psychiatry owes a great deal to Turner and men of his kind. His heart was in his work, and he was content to work for no material rewards. Unfortunately, in the past there has been but little inducement for men to give their lives to scientific work such as Turner accomplished. Things are better now, and there are a number of asylums where thoroughly well-equipped laboratories enable the medical officer of scientific bent to undertake research under extremely favourable conditions and with skilled guidance, but the pioneers of psychiatry who persisted in research with but little assistance, teaching or encouragement, should always be gratefully remembered. Amongst these must John Turner be numbered, and he did much to contribute to our knowledge of mental disorder.

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"The Continuity of Nerve Cells," vol. li.

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"Examination of the Cerebro-Spinal Fluid," vol. lvi.

"The Classification of Insanity," vol. lvii.

"A Biological Conception of Insanity," vol. lx.

"Observations on the Rolandic Area in a Series of Cases of Insanity," vol. lxiv.

H. DEVINE.

An extended obituary notice of the late Dr. James Middlemass will appear in the October number from the pen of Dr. Bedford Pierce.

NOTICES OF MEETINGS.

ANNUAL GENERAL MEETING: At the Royal College of Physicians and University, Edinburgh.

Monday, July 17th: Committee meetings at 3 p.m.; Council Dinner in the evening.

Tuesday, July 18th: Council and committee meetings.

Wednesday, July 19th: General meeting—morning session at 10.30 a.m.; at 1 p.m. the Managers of the Royal Hospital at Morningside invite members to lunch; 3 p.m., afternoon session, Presidential Address; 8 p.m., the Annual Dinner.

Thursday, July 20th : Morning session at 10.15 a.m., at the University—addresses ; 1 p.m., Chairman of Board of Control for Scotland invites members to lunch at the University Union ; afternoon session, 2.30 p.m., addresses ; 8.30 to 10.30 p.m., "At Home" at Craig House.

Friday, July 21st: Morning session, 10.30 a.m., Discussion on the Treatment of Insanity.

[BRITISH MEDICAL ASSOCIATION (Section of Neurology and Psychological Medicine) at Glasgow. Tuesday, July 25th: Discussion on Psychotherapy will be opened by Drs. Mitchell, Brown and Crichton Millar. Wednesday, July 26th: Discussion on Neuro-syphilis will be opened by Sir James Purves Stewart and Dr. Kinnier Wilson. Thursday, July 27th : Papers. President of the Section, Prof. G. M. Robertson.]

South-Western Division.—October 27th, 1922; April 26th, 1923.

Irish Division.—July 6th, November 30th, 1922; April 26th, 1923.

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Part I.—Original Articles.

The Hospitalisation of the Scottish Asylum System.⁽¹⁾ The Presidential Address at the Annual Meeting of the Medico-Psychological Association of Great Britain and Ireland, held in Edinburgh, July 19–21, 1922. By GEORGE M. ROBERTSON, M.D., F.R.C.P.Edin., Professor of Psychiatry in the University of Edinburgh; Physician-Superintendent of the Royal Hospital at Morningside.

I. INTRODUCTION.

THE dominating motive which for more than a generation has directed the activities of the asylum authorities in Scotland has been the desire to make the asylum in that country an institution, inspired by the same exalted principles and conducted on the same medical and nursing methods as those existing in our great general hospitals. That ideal has the supreme merit of being simple and tangible as well as high, for the voluntary hospital is the most perfect embodiment of practical humanitarianism and science at present known to us, and the position it occupies is unique among medical institutions. The more nearly this ideal is reached, the more closely will the care of those suffering from mental disorder approximate to a state of perfection, and the more completely will the asylum be transformed into a hospital for the treatment of a special disease. This is what is understood by the phrase, "the hospitalisation of the asylum," which was first used in 1902.

To give effect to this dominating principle has not been found in practice to be an easy task. A special disease like insanity needs special methods of treatment, and it is impossible to carry these out properly in the ordinary wards of our general hospitals. Further, it has been found that much required to be undone before hospital ideals could be adopted. Although the older and more repulsive

(1) Delivered in the Hall of the Royal College of Physicians, Edinburgh, July 19, 1922.

features had already disappeared, traditional methods of treatment, peculiar to asylums, handed down from one generation to another, still persisted, and it was exceedingly difficult to alter or abolish them.

Speaking broadly, the asylum had its origin in the prison, and neither in its construction nor in its administration has it yet emancipated itself completely from this prototype. The policy, for example, of building numerous single rooms in asylums, formerly called cells, is directly adopted from the prison, and the practice of confining patients in these rooms, almost a natural consequence of their construction, is another relic of this origin. Thus a practice, which is now condemned as a regular procedure, was encouraged by the designs of architects, who, as a rule, knowing little or nothing of medical ideals, copied from one another, and perpetuated undesirable features and methods. The exclusion and non-employment of women to nurse the sick and the infirm in the male wards of asylums is still another result of this legacy. It is a perpetual reminder of the fact that the original conception of an asylum was less that of a hospital for the care and treatment of a special disease than of a safe place of detention for the custody of a dangerous class.

The responsibility resting on those charged with the care of the insane is a heavy one. These patients consist of individuals whom the public, after careful inquiry, has found unfit to be at large. It has officially, through a judge or magistrate, deprived them of their liberty, and has ordered their detention in special institutions, primarily for the purpose of safety. It expects them to be cared for kindly, but in effecting this it has no idea of the practical difficulties of steering a middle course between the safety of the lieges on the one hand, upon which it insists, and the happiness of the patient on the other. It does not realise that this very deprivation of liberty imposed by itself forms the patient's chief complaint and his greatest hardship. The public is also inclined to extreme and hysterical views on this subject. When, for instance, a former patient who has not completely regained an even balance of mind, who in consequence suffers from warped views, a treacherous memory, and a grievance against all who have had anything to do with his detention, writes to the papers, there is an outcry that sane persons are being illegally detained and harshly treated. On the other hand, when some crime has been committed by an insane person, or when an escaped patient has alarmed some quiet neighbourhood, equally indignant letters appear saying how intolerable it is that lunatics should be allowed to be at large, or that more stringent measures should not be taken to prevent the escape of such dangerous persons.

As liberty is the most cherished prerogative of the human being, it is not without good reason that persons of unsound mind are

deprived of it. The measures required for their care very often involve questions of life and death. Every melancholic patient at one stage or another of his illness is a case of potential suicide; every patient suffering from hallucinations of hearing and from delusions of persecution is a possible homicide; while the weakminded and the impulsive are all liable to commit irresponsible acts of a dangerous character. Were such patients treated with a sole regard to their wishes and feelings, tragedies would happen which would move the public to indignation. It has in a large measure escaped such experiences, and in consequence it seems probable that a section of it does not realise that any danger exists at all. The medical superintendent of an asylum is a man who walks on the edge of a precipice, who lives over a powder magazine, and he is wise to err on the side of safety.

In Scotland the medical superintendent is the sole authority over all that relates to the medical care of the patients, and he alone admits and discharges them. He is, very properly, controlled by a Board consisting of some of the ablest men engaged in public life, who exercise a prudent and reasonable economy in all matters connected with administration and expenditure. If the expenditure of any asylum exceeds the average, it must be justified whereby a check and a limit are imposed upon extreme medical and philanthropic aspirations. Were, for example, the staff of one of the rate-aided Asylums to be doubled in number, the benefit to the patients by increased personal attention would be enormous. Even then they would not enjoy the same privileges as many private patients do who pay the higher rates of board in the Royal asylums, but what public authority would submit to this extra expenditure, seeing that the present heavy financial burden of caring for the insane is not borne by the ratepayers without complaint?

In effecting reform many difficulties have to be overcome, and among these not the least are those connected with human nature. As we grow older we tend to become prejudiced against innovation, and in the matter of asylum administration the effects of this human failing have been felt as in other spheres. Progress has often been delayed by the older medical superintendents, who were more or less immune from criticism for the following reasons: Asylum administration is not a form of public service that can be thrown open to public inspection and criticism, which in so many other fields is as useful a corrective as the admission of sunshine and fresh air to dark and stagnant places. The relatives of patients object to publicity. So do those patients who, after recovery, have to face the world again, lest they be seen and recognised, while ill and under treatment. Further, the information given by the majority of patients is inaccurate and very misleading, except to those who

have a knowledge of the symptoms of mental disorder. Finally, the requirements of the insane can only be known by those who have made a study of this difficult medico-social problem.

The General Board of Control, the Government Department controlling the application of the Lunacy Laws, has played a notable part in reform by its encouragement of any good work that had been effected. It has always had distinguished medical commissioners on its staff and enjoys a reputation which is European, as Mr. Munro, the Secretary for Scotland, informed the House of Commons, when resisting a motion for its absorption in the Board of Health. Shortly after its establishment, in 1857, the Board took a momentous decision which has had far-reaching consequences, the influence of which still continues to be felt. It decided not to create a stereotyped official system, nor to insist on a rigid conformity to any system of care, treatment or building construction, but to leave each asylum authority free to initiate its own administrative arrangements and methods of care. It is believed that to the scope thus given to individual initiative, combined with the freedom of action entrusted by the laws to medical superintendents, much of the success of the Scottish system is due. The medical superintendents, finding themselves free to launch reasonable schemes in any direction their personal inclinations led them, did so with an enthusiasm they never would have shown had these been measures forced upon them by any external authority. While one made a special feature of the occupations and amusements of his patients, another of their food or clothing, a third of the extreme limits to which freedom could be accorded them, a fourth of the excellence of their nursing, yet another devoted himself to medical treatment, to clinical research or to laboratory work, though there was least inducement to follow these last important lines of pursuit. The Board of Control, watching each development, brought successful experiments of every kind to the notice of other superintendents, and these innovations, if approved of, were introduced with more or less success into the other asylums. By these means stagnation was avoided, a high general average was attained, and there was no asylum that did not pride itself on some feature in which it firmly believed it excelled all the others.

II. ABOLITION OF PRISON FEATURES.

No attempt will be made to describe in systematic or chronological order all the innovations introduced into the Scottish asylums. Progress, too, though apparently resistless, has been irregular, like that of the advancing tide. The elimination of prison-like features will first be sketched.

All the asylums built for some time after the passing of the 1857 Act had airing-courts attached to their wards. These were open spaces surrounded by high walls where the patient got fresh air and exercise, as the name implied. They were a feature obviously inherited from the prison. "The airing-court system" had grave objections, but it was a convenient way of giving considerable numbers of patients fresh air and some exercise without the employment of a large staff and with the minimum risk of escapes occurring. During the progress of structural alterations in a provincial asylum the walls of one of the airing-courts were taken down, and, to the superintendent's relief and amazement, none of his patients attempted to escape. The question then occurred to him, why confine the patients in airing-courts? Why not make walks for them round the extensive grounds with which most asylums are provided? Practical effect was given to these ideas, and two generations ago this action led to the entire abolition of the airing-court system in all the Scottish asylums. This advance is an excellent example of a great reform started at the periphery by the initiative of one superintendent. There were undoubtedly some merits in airing-courts, but the abolition of the system did much to modify the administrative atmosphere of the Scottish asylums and to pave the way for further changes.

At one time it was customary to place the insane in mechanical restraint by means of strait-jackets, gloves, muffs and hobble for any or every manifestation of conduct that gave the attendants trouble. Then came the era of "non-restraint," associated with the honoured names of Gardiner-Hill and Conolly. It is not generally known, however, that Conolly, in lieu of mechanical restraint, locked up his troublesome patients in single rooms or cells. It was he also who invented the padded room, which he quaintly described as "a room of which the floor is a bed and the four walls are padded." Conolly realised the danger of "the abuse of single rooms," and, although it is not asserted that this noble-minded physician employed them to excess, he certainly used them more freely than modern standards of opinion would approve, and it was he who introduced the euphemistic term "seclusion" as descriptive of the practice. In criticising seclusion, however, it must be remembered that a great change has taken place in the conduct of the insane in our day, owing chiefly to the more considerate and humane treatment which they now receive. So dangerous were they in Conolly's time that the Metropolitan Commissioners for several years set their faces sternly against the introduction of the "system of non-restraint" on account of the danger to which they believed it exposed the staffs of asylums.

The solitary confinement of patients in single rooms during the day, technically described as "seclusion," became an abuse just as mechanical restraint had formerly been, and to check this a note of its employment had to be registered for the information of the Board of Control. In several large asylums, however, it was found that its use could be altogether discarded, so about twenty years ago the Board decided to publish in their Annual Reports a comparative-table of its use by the different superintendents of asylums. This was quite sufficient for the purpose in view, for it soon led to the practical abolition of its use in Scotland except in very special cases in which it was justified.

"The padded room" of Conolly was also used freely by a former generation of medical superintendent. I have taken scores of laymen round asylums in the past, and I always found that the padded room had a morbid interest amounting to a fascination for them. To experience in jest the emotion of being locked up in one was the climax of their interest in their visit. Many persons seem to entertain the idea that asylums are plentifully supplied with such conveniences, and that they form the characteristic feature of the care of the insane. Our largest and best-managed asylums do not now possess any padded rooms. A delirious patient who does not know what he is doing, like a patient suffering from the analogous delirium of typhoid fever, should not be left alone in a room, even though the floor be a bed and the walls padded, for he requires constant supervision and attention.

As already mentioned, architects have endowed asylums lavishly with single rooms, and some use has to be made of them. They were originally employed at night for locking up patients who were excited, noisy and violent. No attempt was then made to treat their mental symptoms at night, and failure to do so often led to these becoming more firmly established and almost ineradicable. Even recent and recoverable cases of insanity ran a danger of being put out of sight at night in these rooms, to their great detriment. No single agency has probably done more to provide some justification for the supposed manufacture of "the asylum-made lunatic" than the abuse of single rooms. Several of the younger superintendents in Scotland took up the subject of this reform with such enthusiasm that in the course of two or three years the single-room system was abolished in many asylums, and no patients were ever locked up by them in single rooms either by day or by night, the rooms being used solely as privilege rooms or private bed-rooms for convalescent patients.

The keynote of this reform is the substitution of continuous personal attention for the mechanical safeguard of a locked and shuttered

room. Within living memory in one of our largest asylums the night staff consisted of one night-watchman, who did duty on both the male and the female sides. With this minimal staff the only way of preventing serious accidents, such as assault or even homicide, was to lock up in separate rooms during the night all dangerous and troublesome patients. At the present time the night staffs in all our asylums have been so greatly increased in number that they are numerically sufficiently strong to give continuous personal attention in classified dormitories to all the patients whose symptoms require it. The ideal standard of care during the night should be equal to that maintained by day, otherwise the progress toward recovery made by day is lost at night. Efficient night nursing is now one of the most satisfactory features of the Scottish system.

The breakaway from the prison type of institution is further manifested by the introduction of "the open-door system," which was an attempt to reduce to a minimum the number of locked doors, with the object of removing the undesirable prison-like impression produced by locked doors on the minds of many patients. Sir John Tuke observed that in an asylum, suitably constructed, this unpleasant feature could be almost eliminated. The enthusiasm of a pioneer carries him very far, and for this we have reason to be grateful. If all the doors of our asylums are not kept unlocked, we have at least learned the lesson that many of the wards containing convalescent and quiet patients may safely have open doors, and the patients in these may be permitted to lead almost an ordinary domestic life. This conception has been further realised by the erection for this class of patient of detached villas without obvious institutional features. We thus logically and irresistibly arrive at the stage of granting *parole* to patients who promise not to attempt to escape, who then live in open wards, and enjoy complete freedom of movement within and even without the grounds of the asylum. This practice is extensively adopted and is comparatively seldom abused. It is eagerly sought after by many patients, not only for its manifest advantages, but because it gives a status to the patients and adds to their self-respect, just as the further selection of a patient for an office or post in the asylum, however humble it may be, adds to his pride and contentment. Especially in dealing with the insane is a policy based on the study of human nature that which gives the best results.

In this connection a most important feature of the Scottish system is the removal from asylums of harmless patients and the placing of them in the country under the care of selected guardians. This is known as "the boarding-out system," under which over 2,000 unRecovered but harmless patients in Scotland, who no longer need the special and expensive treatment supplied by mental

hospitals, are provided for. Its success has attracted the attention of the civilised world, and it has been the subject of innumerable reports by foreign commissions of inquiry. It costs less than any other method of maintaining the insane, and, in addition, the State is spared the necessity of building expensive institutions to accommodate these patients—a very important consideration in these days. Further, the patients are far happier leading natural lives in a congenial environment as simple members of a rural community, doing such work as they can, than as units of a multitude in a large public institution. Here our practice has gone as far away as it possibly could from any suggestion of prison or of restraint, and the unrecovered patient is replaced in a natural home under more familial and domestic supervision.

III. INTRODUCTION OF HOSPITAL FEATURES.

Passing now to the hospitalisation of the asylum, honour must first be paid to the distinguished pioneer of this movement in Scotland, the late Sir Thomas Clouston. During a long life he did much for it, at the same time inspiring a scientific spirit and an enthusiasm for their work among the medical officers of asylums. No keener observer of the symptoms of insanity ever existed, and no one who in such apt phrase painted so vivid a picture of its many varieties. From an early period of his career he taught that an asylum should be an Institution for medical observation and treatment, and to enforce this idea his favourite recommendation was that every asylum should be provided with a separate hospital block. As the medical superintendent and his assistant entered its portals on their daily rounds, he believed they would instinctively feel and breathe a medical atmosphere. In its wards all recent cases of recoverable insanity and all cases of bodily illness occurring in the asylum would be treated, and the nursing staff in their training should first pass through its wards. The majority of the modern Scottish asylums have been provided with these separate and distinctive hospitals.

The next advance to which I shall refer was taken in 1880 by the late Dr. Campbell Clark when he began courses of instruction for nurses and attendants on the lines of those given in general hospitals. He described his methods to the Scottish Division of the Medico-Psychological Association, after which similar courses were immediately instituted in other asylums, and in order to standardise this instruction the Scottish Division published a *Hand-Book for Attendants on the Insane*. The Medico-Psychological Association of Great Britain and Ireland ultimately adopted this as the official text-book for the use of nurses and attendants who were candidates for the Certificate of Proficiency in Mental Nursing, which it instituted.

This certificate was conferred on nurses after a period of training and after passing certain examinations, when they became eligible for enrolment on the Association's Register of Certificated Mental Nurses. Thus, thirty years before the recent Act for the Registration of Nurses was passed, mental nurses through the agency of this Association enjoyed practically all the advantages now being conferred for the first time on hospital and other nurses. The training and instruction of mental nurses in the Scottish asylums has all along been conducted with care, success, and zeal, as was only natural in view of the history of the movement.

Another important advance was the appointment of hospital nurses as matrons of the female divisions of asylums. Its main object was to improve the quality of the sick-nursing, but another was to place an educated woman with medical training and instincts at the head of the female staff. The most serious defect of this departure at first was the total ignorance of the new matron of even the elementary procedures of a special kind needed for the safe and proper care of the insane. After many failures had occurred it was recognised that some preliminary asylum experience was necessary, and this defect was overcome twenty-five years ago by the appointment of three hospital nurses as assistant matrons with the object of training them in mental nursing and asylum management, so as to fit them for the post of matron. When these had gained the experience needed, they were all successful in obtaining appointments because there were no other candidates with equal qualifications to compete against them. After this object-lesson had been given, hospital nurses were anxious to come for training, and as this system of appointing hospital nurses as assistant matrons is an established feature in Scotland, there is now an excellent supply of qualified candidates for the post of asylum matron.

It will be at once seen what a powerful instrument for the hospitalisation of the asylum, at least on its female side, is the constant presence of assistant matrons within the wards working under the direction of a matron who is also a hospital trained nurse. Provided these women have been wisely selected and receive support and encouragement from the medical officers, the approximation of the methods of the asylum to those of the hospital proceeds apace, for the practical steps to be taken are very simple and are as follows : Every feature which exists that is peculiar to the asylum is suspect. If it can be abolished without detriment, it is given up. If it can be replaced by some hospital method equally good, then that is adopted in preference. Two or three years of honest administrative spade work on these lines has completely transformed many features alien to hospitals that still existed in Scottish asylums.

We have so far dealt mainly with the female side. Can the male side of an asylum be considered to be part of a modern hospital without the presence there of a single female nurse? Women show such superior aptitude for the duties of nursing that this vocation is universally recognised as theirs, and the reason for this superiority is not obscure. It rests on the solid foundation of the mothering instinct, which is sometimes so strong in women that it cannot be suppressed and must manifest itself in some form or other. No scheme for the hospitalisation of asylums can be complete, indeed it cannot be said to have been properly initiated unless women are employed, so far as that is practicable, to nurse the male insane, who are apparently the last class of the sick and helpless to receive the benefit of their sympathy and skill.

The above statement explains why so many attempts have been made to overcome the difficulties connected with the employment of women on the male side of asylums. The first was made by Dr. Hitch, of the Gloucester Asylum, the founder of the Medico-Psychological Association, who employed the wife of the charge-attendant of the refractory ward in the year 1841. I was informed by his widow that Dr. Hitch employed this woman not for her nursing abilities, but to counteract the rough behaviour of the male attendants to the patients in her husband's ward. Dr. Hitch's plan of employing married couples, as a form of "auxiliary female care," was adopted by several superintendents, especially in their sick wards. Further progress was made, twenty-five years ago, when a successful experiment was carried out by Dr. Turnbull of employing women in a hospital ward of an asylum, not as auxiliaries to male attendants, but in complete nursing charge of thirty male patients during the day. At a still later date a male ward in another asylum was placed by night as well as by day in the entire charge of female nurses. The patients in these wards, of course, received auxiliary male care when it was necessary, as, for instance, for the purpose of bathing. This system of female nursing in some measure or other has now been adopted for nearly a generation in all but one of the asylums in Scotland. The vast majority of women prefer to nurse male patients, because they are not only less troublesome and less excitable than female, but because they find that they usually receive more courtesy and readier obedience from men than from members of their own sex.

The hospital wards containing the sick and the infirm were naturally the first parts of the male side to be staffed by women, but having obtained a footing, the sphere of usefulness of female nurses and assistant matrons has gradually extended to other departments. It is not only in the care of the sick and the helpless that the special

qualities of women are of advantage. It has been found that they possess more control than men over many cases that might be thought most unsuitable and unfavourable for their care. Excited patients, for example, who are ready to fight with any man who ventures to exercise authority over them, will often do anything they are asked to do by a woman, and will often become calm and tractable if they receive a few simple words of sympathy from her. A woman continues to exert much the same subtle influence over an insane man, who is not actually delirious and confused, as she does over one who is supposed to be in his right mind. Feelings of chivalry and of honour do not necessarily die because a man suffers from some derangement of mind.

Another step has been taken in more than a third of the Scottish asylums, namely, the appointment of a matron over the whole asylum, both male and female sides, whereby the analogy to the general hospital is rendered still more complete. This step was inevitable, if the hospital ideal, as set forth above, was to be attained, because no facilities are given to men in our general hospitals to obtain full training in nursing and a hospital certificate. The appointment, therefore, of a male attendant to act as head of the nursing staff of the male side of an asylum is a practice that is gradually falling into disuse in Scotland as vacancies occur.

An increase in the numbers of the medical staff, and a more thorough study of the physical disorders associated with insanity by all the scientific methods of investigation employed by hospital physicians, are features that are intimately connected with the process of hospitalisation. So also is a higher education in the science of psychiatry, to further which diplomas in psychological medicine have recently been instituted by the Universities and licensing bodies at the request of the Medico-Psychological Association. The Scottish asylums, by the advantageous preparations they have already made, are ready for a great development of the medical treatment of the insane on these scientific lines. It, however, remains a matter for surprise that the State has in the past taken so little interest in research or offered so little encouragement to investigations into the nature and the prevention of insanity, seeing that the care of the insane is so heavy a financial burden. One mental disorder alone, namely, dementia *præcox*, probably costs the country more in maintaining its helpless victims for life than any other single disease. It is hoped that this defect will be removed by the organisation of systematic research work in our laboratories.

Lastly, the Scottish asylums are administered under an archaic code of laws, of which the parent Act was passed a few years after *Sarah Gamp* had been presented to the world, but before Florence

Nightingale had reformed our hospitals or *Hard Cash* had been written by Charles Reade. The provisions of this Act were designed to suit a form of social life that no longer exists, and medical science and the art of nursing have long ago left it far behind. As the Board of Control has admitted the necessity for a new Act, let us hope that it will be framed on medical lines, and particularly that under its provisions it will be possible for any unfortunate person, who is sick in mind, to obtain the medical treatment and nursing his illness requires, without first being legally branded a lunatic as at present, and then committed to detention by a judge or magistrate, as if he were a species of criminal. After all, such a procedure is not very different from the trial of the sick person in Samuel Butler's *Erewhon*, who, suspected of being consumptive, was apprehended and tried, as a common criminal would be with us for burglary. Not till the cruel anachronism of these laws is removed, which after 64 years' service have outlived their purpose, will the asylum shed its last prison features, be cleansed of the prison taint and be free to develop along purely medical and hospital lines. That it can be removed without evil consequences following is demonstrated by the amazing situation that has come to pass in Scotland, where the majority of private patients paying the higher rates of board are actually being admitted to the Royal asylums, not under medical certificates and judicial orders, as was intended by our well-meaning legislators of other days, but as voluntary patients. Why should it not be possible for the rate-aided poor to enjoy this privilege? Their need is just as great as those endowed with wealth, and, being without means, they are less likely to be the victims of designing persons or plots. But, as a matter of actual fact, no one, rich or poor, has ever been found by our courts of law to have been wrongly detained in a Scottish asylum.

IV. CONCLUSION.

On taking now a broad survey of the numerous changes that have been introduced into the Asylum system of Scotland during the last two generations, we can crystallise the essential features of these developments into two simple yet comprehensive ideas or formulæ. These are, firstly, the abolition of prison features, which are an inheritance from the past, by the substitution of continuous personal attention; and, secondly, the hospitalisation of the asylum by the introduction, as completely as possible, of the methods employed in hospitals for investigating, treating, and nursing disease, which still remain the ideal for the future.

The effects of these changes have been so great that they might correctly be described as revolutionary, were it not that the process,

though still incomplete, has been so gradual. The patients, who in former days were often unruly and even dangerous, have become so much more calm and orderly that those whose recollections go back nearly forty years ask themselves, "Has the type of insanity changed to one with milder symptoms?" The public, of course, still imagines that every patient in an asylum is a raging maniac, but years pass without such a case being seen, because to a large extent they were the product of the treatment they formerly received. The nurses, now trained, take a more intelligent interest in their work and give more careful attention to their patients. Their status has improved, and many of them now complete their training in General Hospitals. Lastly, the tone and the whole atmosphere of the institution is different. It is at once more human, more sympathetic and more medical. This is perhaps the most striking change of all, and although it is very difficult to explain in words, its influence is all-pervading and dominant. When, then, the medical officers of asylums have been increased in number and have received a special training in psychiatry, and when the laws cease to place a prison-stigma on asylums and their inmates, and to obstruct by legal technicalities the admission and treatment of patients in the early and curable stages of mental disorder, then will we attain the exalted ideal we have cherished and that has dominated our activities. Then will the Scottish asylums become special hospitals in the true sense of the term, and take their place honourably by the side of our great general hospitals, which have served as faultless and priceless models for their imitation.

The Genetic Origin of Dementia Præcox.⁽¹⁾ By Sir FREDERICK W. MOTT, K.B.E., M.D., LL.D., F.R.S., F.R.C.P., Director of the L.C.C. Pathological Laboratory, Maudsley Hospital.

Mr. PRESIDENT, LADIES and GENTLEMEN,—Last year I had the honour of delivering the Maudsley Lecture, and I brought forward a certain amount of evidence in favour of the genetic causation of dementia præcox. I have continued these investigations and published the results in papers entitled "Further Pathological Studies in Dementia Præcox, especially in Relation to the Interstitial Cells of Leydig," *Proc. Roy. Soc. Med.*, 1922, vol. xv (Section of Psychiatry), pp. 1—30; also "The Reproductive Organs in Relation to Mental Disorders," *Brit. Med. Journ.*, March 25, 1922. The former investigation included 27 cases of dementia præcox, the onset

⁽¹⁾ A paper read at the Quarterly Meeting of the Medico-Psychological Association held in London, May 25, 1922, with lantern demonstration of photomicrographs, etc.

occurring in adolescence; also the results obtained in 9 cases of psychoses other than dementia præcox occurring in post-adolescence, and 4 cases of primary dementia, in which the demential symptoms came on in post-adolescence. From these investigations, and from others which I have been pursuing, I have come to the conclusion that it is better to speak of primary dementia, which may occur either in the pre-adolescent period, adolescence, or post-adolescence; moreover, I am of opinion that all the psychoses belong to one group and are genetic in origin. In those forms of psychoses in which recovery takes place—for example, confusional insanity or exhaustion psychosis, benign stupor, periodic insanity, or manic-depressive insanity—we may assume there is a suspension of neuronic function in the highest psychic level; but all these conditions I have found may end in a terminal dementia, in which the changes in the reproductive organs and in the brain do not differ from those met with in the primary dementia of adolescence, the dementia indicative of a suppression of function. In the primary dementias, naturally, the symptoms may be partially due to a suspension, and partially to a suppression of function, and I would explain partial remission of symptoms by a partial restoration of function in neurones in which the nuclear change was either not present or not advanced.

TWO SCHOOLS OF THOUGHT IN RELATION TO DEMENTIA PRÆCOX— THE PSYCHOGENIC AND PHYSIOGENIC.

There are two schools of thought, one physiogenic, the other psychogenic. The former attributes the mental disorder to a primary bodily pathological condition, the latter to a primary non-adaptable psychological function. The frequency with which psychoses and psycho-neuroses follow emotional shock connected with the sex impulse, the character of the dreams and their interpretations, the nature of the hallucinations and delusions in a great number of cases, suggest an origin in excitement or repression of the sex instinct.

It was thought, and is still, by the psycho-analyst school that in the primary dementia of adolescence—dementia præcox, as it is called—there were no bodily changes sufficient to account for the signs and symptoms of mental disease. The physiogenic changes that are met with, it is stated by Jung, are the result, not the cause, of the psychogenic disorder. Thus this author in his work, *Analytical Psychology*, states :

"The difference between us is as to the question whether, in relation to anatomical basis, the psychological disorders should be regarded as primary or secondary. The resolution of this weighty

question depends upon the general problem as to whether the prevailing dogma in psychiatry—"disorders of the mind are disorders of the brain"—presents a final truth or not. This dogma leads to absolute sterility as soon as universal validity is ascribed to it." And—"Such an idea is only incomprehensible to those who smuggle materialistic preconceptions into their scientific theories. This question does not even rest upon some fundamental and arbitrary spiritualism, but upon the following simple reflection. Instead of assuming that some hereditary disposition, or a toxæmia, gives rise directly to organic processes of disease, I incline to the view that upon the basis of predisposition, whose nature is at present unknown to us, there arises a non-adaptable psychological function which can proceed to develop into manifest mental disorder; this may secondarily determine organic degeneration with its own train of symptoms. In favour of this conception is the fact that we have no proof of the primary nature of the organic disorder, but overwhelming proofs exist of a primary psychological fault in function, whose history can be traced back to the patient's childhood."

The physiogenic theory presupposes an inherent germinal narrow physiological margin of normal functional capacity of the brain, and stresses which we will consider under the heads of physiological, psychological, and pathological, reveal, excite or accelerate a genetic inadequacy causing a disintegration of the psychic unity. I will consider *seriatim* these various forms of stress.

1. *Physiological stress*.—The period of adolescence in both males and females in connection with the sex impulse may be an exciting cause of this primary disintegration. The normal physiological processes of gestation, parturition, and lactation in the female require a greater production of formative energy than the body is capable of producing; consequently we find in this period of life a large number of adolescents breaking down and exhibiting signs of either suspension of function in the highest psychological level, or in the severer cases, suppression, although the stress is merely that of a normal physiological process.

In the current number of the *Journal of Mental Hygiene* (April, 1922) some valuable statistics are given, throwing, I think, some light upon the influences connected with the sex instinct in relation to dementia præcox.⁽²⁾

Marital Conditions of First Admissions with Dementia Præcox.

	Males.	Females.	Males.	Females.
Single 2,401	1,100	75·0	43·2	
Married 649	1,111	20·3	44·4	

The differences in percentages are noteworthy. Particularly

striking is the large percentage of single men and the large percentage of married women. Masturbation may be correlated with the former, and the physiological stress of pregnancy, parturition and lactation with the latter.

2. *Psychological stress.*—Emotional shocks, mental conflicts connected with the primal instincts of self-preservation, propagation, and the social instinct, are sufficient to induce neuronic stress, insomnia, and metabolic hypo-function of the highest psychic level, in which there is, for reasons to be discussed, a lack of durability. Disturbances of the normal balance of the internal secretions of the reproductive endocrine glands may be causally connected with disturbance of the functions of the vegetative or autonomic nervous system by which they are normally brought into harmonious functional relationship. The emotions and passions not only have their bodily expression in such external secreting glands as the salivary, sweat, and tear-glands, but the endocrine organs, the organs of respiration, circulation, digestion, assimilation, and reproduction, which are likewise controlled by the vegetative nervous system, are profoundly affected when an individual is the subject of violent or continued emotions or passions. Moreover, repression of their external visible manifestation does not save the individual from their harmful influences upon the functions of the internal organs, over which the will has no control. A vicious circle is thereby apt to be set up. Anxiety neuroses with terrifying dreams in soldiers were not infrequently accompanied by symptoms of Graves's disease, exophthalmos, palpable thyroid, Von Graefe's and Mobius signs, fine tremors, tachycardia, and high blood-pressure. The aspect of the man was similar to that of terror, which is contemplative fear. There is an interrelation of the suprarenal and the thyroid glands, and probably the fear led to an increased discharge of adrenalin into the circulation, and this may have excited or increased the function of the thyroid gland.

Pathological conditions.—Disturbances of the normal balance of the internal secretions of the reproductive and endocrine glands may therefore underlie many mental disorders.

THYROID INSUFFICIENCY.

In some cases of women, at the involutional period of life especially, there is a subminimal deficiency of thyroid secretion into the blood (hypothyroidism), and myxoedema occurs with the characteristic symptoms of slowness of thought, of speech, and of action, and not infrequently a disintegration of psychic unity with hallucinations and delusions, and even dementia occurs. I have now examined 7 cases, and I find this hypothyroidism is associated with a marked

disappearance of the Nissl basophil substance, which may be regarded in a measure as indicative of the loss of energy substance of the neurone. We know that administration of thyroid gland will restore the function. Moreover, the idiocy of sporadic cretinism can be averted by the administration of thyroid. It has been shown that thyro-iodin increases the electrical conductivity of the neurone. We thus see that the functions of the suprarenal and thyroid glands are interrelated with the functions of the nervous system.

INADEQUACY OF BODILY DEFENCES AGAINST MICROBIAL TOXINS.

Microbial toxins and insufficiency of the normal bodily defences by production of antitoxins is well known. Their influence, however, in the production *per se* of mental disease, *in my opinion, is somewhat exaggerated*. In the case of the mental affections, termed puerperal mania and lactational mania, there is a disintegration of the psychic unity. This failure is due generally either to a physiological or psychic stress, but it may also be due to microbial toxic agencies, causing suspension or suppression of function especially of the highest psychic level. The patient may, as a result of one or more of these exciting causes, suffer from an exhaustion psychosis from which she may completely recover, or it subsequently may prove to be the first attack of a periodic insanity. Since in both these mental disorders there is a return to normal mentality, it may be assumed that there was only a suspension of neuronic function. But the patient may not recover, and passes into a state of dementia, eventually to die in an asylum of some intercurrent disease, often after many years' residence. Since similar nuclear and cellular changes are found in the neurones of the cortex of cases of adolescent or post-adolescent dementia where the patient has died of an acute disease lasting only a few days, *e.g.*, pneumonia or acute dysentery, or a chronic disease, *e.g.*, pulmonary tuberculosis or chronic dysentery, the neuronic changes cannot therefore be ascribed as secondary to the prolonged effect of the toxins. The same argument applies to the regressive atrophy of the ovary: consequently the assumption that these biogenetic changes in the brain and reproductive organs are due to the toxins of the chronic disease falls to the ground. Moreover, we know that in women with active and chronic tuberculosis not only do the Graäfian follicles undergo maturation, but that they become pregnant and give birth to a living child, their mind remaining perfectly clear. Moreover, I have shown that chronic pulmonary tuberculosis and chronic dysentery does not arrest active spermatogenesis in the male.

Since therefore all the before-mentioned forms of stress do not as

a rule produce *per se* either a disintegration of the psychic unity or a genetic failure in the reproductive organs, we may inquire what can be the essential cause unless it be an inborn germinal defect.

IMBECILITY AND GENETIC INADEQUACY.

I have shown that in low-grade imbeciles and idiots there is an absence of spermatogenesis. In many low-grade congenital imbeciles of the female sex there is frequently a failure of maturation of the primordial follicles, as illustrated by the following case, in which there was arrest of development of the supragranular layer of pyramids from birth. At puberty an acute degenerative process occurred which affected especially the infragranular layer. Now, this case is of considerable interest, for it shows that a congenital imbecile, till the stress of adolescence occurs, is able in a childish way to make simple mental adjustments to satisfy the primal instincts of self-preservation and the social instinct. She was only educable to a limited degree, and this fact may be correlated with a morphological fact, *viz.*, an imperfect development of the supragranular layer of pyramids. But if you look at the drawing (Plate I), you will see that there is also a gross recent morbid change in the deeper layers of pyramids, and especially of the polymorphic layer which may be correlated with the terminal dementia.

Congenital Imbecility with Terminal Dementia in Adolescence.

Age on admission : 16. *Age at death* : 20. *Single.*

Pregnancies and results.—*Nil.*

Heredity.—*Nil* known of history.

Menstruation.—Irregular, slight; no further information obtainable.

Nature of mental disease and brief history of the same : *Congenital imbecility with terminal dementia*.—She has been dull from childhood, and has been getting worse for the last two years; neglected to do things when told; cheerful at times, at other times reserved. Sexual excitement. On admission threatened to commit suicide, but later there was no return of these suggestions. A note made a week after admission says that she is a congenital imbecile. She is weak-minded, and unable to give a connected account of herself. She thinks she is in the Hackney Asylum. She cannot add the simplest numbers. She laughs in an irresponsible way. Her speech is that of a child of tender years. She does not know the day of the week. Talkative, restless and childish. Dirty in her habits. Her general health is good. A note on her condition taken six months before death says that she is becoming more and more demented, and is able only to answer the simplest question.

Cause of death and other pathological conditions.—Tubercular broncho-pneumonia; gangrene of lung.

Brain weight.—1,010 grms.

Weight of uterus.—Uterus is infantile.

Weight of ovaries not given.

Remarks.—Ovary very small, not larger than that of an infant of eighteen months. Numbers of primordial follicles in stroma; very few show any zona granulosa; the nuclei show an imperfect network as a rule. There are no signs of corpora lutea, but a number of atretic follicles of varying size from a small pin's head downwards. There are a few follicles commencing to mature, but the nucleus shows no network and is obviously degenerated. The zona granulosa

shows hardly any chromatin in the nuclei, and the cells are obviously degenerated. The larger atretic follicles show no epithelial cells. There are a few small corpora atretica.

Examination of the brain.—Frontal region and motor area: various regions of cortex, stained by polychrome, show absence or deformity of Meynert's columns and great paucity of pyramidal cells with excess of neuroglia cells. In the deeper infragranular layers there is marked swelling of the large pyramidal cells and vacuolation due to lipoid degeneration. Most of the medium and small pyramidal cells show this change, and many of them are distorted and have their processes broken off and show no apical processes. The same appearances are seen in the polymorph layer, where there are fewer cells and more degeneration (Plate I). These changes, which appear in all layers, are seen also in Cajal-Silver preparations. Similar degenerative changes are seen in the stellate cells, many of which are mere shadows. There are large numbers of pale nuclei of glia cells, and they can be seen adherent to the dead ganglion cells. Stained by Scharlach the vacuoles are seen to be due to lipoid granules. The cells have the same appearance as observed in amaurotic idiocy, and I have seen similar appearances in a case of acute dementia praecox dying of tuberculosis.

The medulla oblongata: All the groups of cells with the exception of the olive show some degree of fatty change of the cytoplasm and disappearance or diminution of the Nissl substance. A number of the cells, especially the smaller, present an appearance similar to amaurotic idiocy.

Spinal cord: The large anterior horn-cells as a rule show a fair pattern of Nissl granules. The cells of Clarke's column show some perinuclear chromatolysis. The intermedio-lateral and the small cells at the base of the anterior horn show little basophil substance, and a good many the degenerative change.

Cerebellum: The cells of Purkinje are well stained and show no vacuoles. The cytoplasm in nearly all the cells contains Nissl granules. There is no deformity of the cells. The granule layer appears to be normal.

Cortex: Weigert-stained sections show diminution of tangential fibres, also of supragranular fibres and interradial fibres. There is some attenuation of fibres of medullary rays.

Medulla oblongata: There is some degeneration of fibres and sclerosis, diffuse in character, in the pyramids and in the antero-lateral tracts.

Spinal cord: There is diffuse degeneration in the lateral columns corresponding to tracts of Gowers and Flechsig and the crossed pyramidal and direct tracts. None in the posterior columns.

Summary.—There is a selective action in this case which does not quite correspond with what is found in amaurotic idiocy; for although the cortex and medulla are affected with the characteristic change the Purkinje cells have escaped.

Unfortunately the endocrine glands were not kept and therefore not examined.

Correlation of Clinical Notes with Anatomical Findings.

The diminution of pyramidal cells in the supragranular layer, the distortion of the cells in that layer, indicating arrest and failure of development, may be correlated with the statement "dull from childhood."

At puberty the symptoms of dementia praecox came on, terminating in degeneration of the deeper layers of the cortex.

This case supports Bolton's view that the infragranular layer is connected with the vegetative functions, including reproduction. The infantile condition of the ovaries and uterus may be associated with a genetic inadequacy.

PROBABLE FUNCTIONS OF SUPRA- AND INFRAGRANULAR LAYERS OF THE CORTEX.

Shaw Bolton⁽³⁾, by very careful micrometric measurements, has shown that the supragranular layers are developed at a later period of life than the infragranular layer. From an evolutional point of view I have shown, and especially Brodmann has shown,

that as we rise in the evolutional scale the layer of supragranular pyramids, which forms a continuous sheet of cells over the whole neo-cortex, increases in depth and extent in proportion as the associated perceptions of hearing, sight and touch as directive faculties of movement permit of more refined and complex adjustments in the life of external relation. In man this layer of cells in depth and extent has far exceeded that found in the anthropoid apes, and recent anthropological researches indicate that a distinctive feature of the brain of *homo sapiens* over his ape-like ancestors is an increased development of the temporal, parietal and frontal lobes. I have digressed a little, but I will now return to the infra-granular layer, the function of which Shaw Bolton considers is vegetative—that is, connected with the life of internal relation, including, of course, the important function of reproduction. The integration of the neuronic structures ministering respectively to the life of external relation and of internal relation is essential for psychic unity, and it may be remarked the onset of the demential symptoms in this case may be correlated with the changes observed in the deeper layers of the cortex, and the active degenerative change it may be assumed as due to an inborn germinal defect similar to that which caused the arrest of the pyramidal layer. Now in the primary dementia of adolescence we find very marked nuclear and cytoplasmic changes with a great excess of neuroglia cells in the deeper layers. These pathological changes cannot be explained by vascular or toxic causes, otherwise we should see evidence of the former, and if the latter were the cause, the toxin in the blood should affect all the cells of the central nervous system. Now, nuclear changes, deficiency of the basophil substance and replacement by lipoid granules in the cytoplasm—evidence of hypofunction—are found in all layers of the cortex, and in the basal ganglia and to a less degree in the medulla in dementia præcox. These microscopic changes in the neurones indicate incomplete oxidation and metabolism, and they may be assumed to be sufficient to lower or interfere with the normal functions of neurones so affected; but under favourable conditions such changes are not irreparable. Where, however, the nuclear, dendritic, and cellular changes are very pronounced, evidence is afforded of a neuronic incapacity, indicative of a decay, and in extreme degrees a destruction, which renders a return of function impossible. Although the axons may still be present, and there may be but little fibre destruction, yet the affected neurones cannot transmit impulses because there is synaptic dissociation. It is in the cortical neurones where this decay and permanent synaptic dissociation and functional incapacity is most pronounced. Where the neurones are most devitalised there the neuroglia cells are most abundant—in fact, they can be seen sticking on the degenerated

ganglion cells and exercising a phagocytic action. If, then, it be admitted that there is a primary neuronic decay of the cortical cells; we may inquire—Why do we so often find the large Betz cells of the motor area and the large flask-shaped cells of the ascending parietal, also the large motor cells of the calcarine striate area, of fairly normal appearance as regards nucleus and Nissl granules, while the adjacent cells of the infragranular and supragranular layers are profoundly affected? It cannot be because the cells are larger and have a greater resistance, for the small association cells of the spinal cord do not show degenerative nuclear changes in this disease. May it not be that these large motor cells are of a lower evolutional level than the other cortical neurones? They may be, as it were, interpolated into the neo-cortex, and in support of this view, as we shall see later, their axons are myelinated before the axons of the other cortical neurones.

In contrast with this case of congenital imbecility terminating in dementia at puberty I will now direct your attention to a case of acute dementia præcox in a highly intellectual youth.

SUMMARY OF CLINICO-ANATOMICAL INVESTIGATION OF CASE OF ACUTE DEMENTIA PRÆCOX.⁽⁴⁾

A youth, æt. 19, was admitted to Claybury Mental Hospital with the following history:

Father died in an asylum; father's sister (one of 12) insane. On the maternal side grandmother died of diabetes; grandfather insane; mother's brother (one of 9) insane. The patient is one of a family of 5. A brother died of penetrating bullet-wound of the right temple (suicide?). A sister was recently admitted for the fourth time to an asylum. The patient's intelligence was above the average, and he was a good athlete.

Present illness.—He had been working hard for an examination, and suffered from excitement and insomnia. He passed the examination, but became depressed when his sister was sent to the asylum. He became worse, and had a delusion of having committed a great sin, and asked for poison. The certificate stated that he was acutely melancholic, agitated at intervals, speaks reluctantly, and only in a whisper. Says he is done in for robbing people. He was sent from the Infirmary to a London mental hospital on November 10th, 1921, and died November 21st, 1921. The most noticeable physical change was the rapid action of the heart, pulse 140. There was general hyperæsthesia.

Fading erysipelas of left side of face.

His mental state varied between a dull semi-conscious resistance to

all interference, and to partial consciousness. He had no control over his sphincters. The temperature was normal on admission, but rose to 100 and later to 102; it was subnormal for two days before death. Cultures of the blood were negative, and the examination of the cerebro-spinal fluid was negative in every way.

Post-mortem examination and histological investigation of the organs of the body revealed nothing to account for death, except very marked congestion and redness of brain, with minute haemorrhages, especially in the medulla. The testes weighed, when freed from tunica albuginea and epididymis, 8 grm. each. Strange to say, the testes of the brother that died of bullet-wound of brain showed a similar regressive atrophy. The organs of this case had been sent to me from a London Hospital, when I was seeking in 1915 normal material from cases that died of injury.

In both of these brothers the testes showed numbers of tubules with greatly thickened basement membrane, increase of fibrous interstitial tissue, and diminution in size and in number of the Leydig cells (Plate III, fig. 1). The epithelium lining the tubules either consisted only of Sertoli cells, or there were obvious signs of a progressive genetic inadequacy to form gonads. The nuclei of the spermatocytes showed no mitosis, or if spermatids were formed, they were relatively few in number, and were frequently seen to give an acidophil reaction. In a few of the tubules there were a few heads of spermatozoa, but these were often distorted in shape, and many gave an acidophil reaction. In fact, the histological changes corresponded with those seen in cases of advanced dementia præcox (Plate II, figs. A, B, C).

Microscopic examination of the brain by Nissl method, Hortega method, and Scharlach stained frozen sections counterstained with haematoxylin, revealed similar changes to those observed in dementia præcox: swelling of nucleus, lipoid granules replacing Nissl granules in the cytoplasm, especially marked in the supragranular layer of pyramids, the granule layer, and the polymorph layers accompanied by a proliferation of glia cells (Plate III, fig. 2 and Plate IV, figs. 1 and 2). Similar changes, though less marked, were observed in the basal ganglia, pons and medulla. These changes were not observed in the cerebellum. Kraepelin,⁽⁵⁾ alluding to the researches of Reichardt, states that cases of acute dementia præcox occur in which there is cerebral congestion and œdema of the brain. What part the erysipelas may have played I do not know, but that the condition was not due to a septicæmia or a meningitis was shown by the results of the examination of the blood and cerebro-spinal fluid, and the negative results of histological examination of the various viscera, including the heart and kidneys. Unfortunately the suprarenal glands were not sent for examination.

The existence of an hereditary taint on the maternal and paternal

sides, the condition of the testes in both the patient and his brother, point strongly to a primary genetic inadequacy, which under the psychical stress of preparing for an examination, insomnia, the knowledge of his family's antecedents, his sister's being sent for the fourth time to an asylum, culminated in an acute disintegration of his psychic unity, which could be explained by the microscopic changes found in the brain.

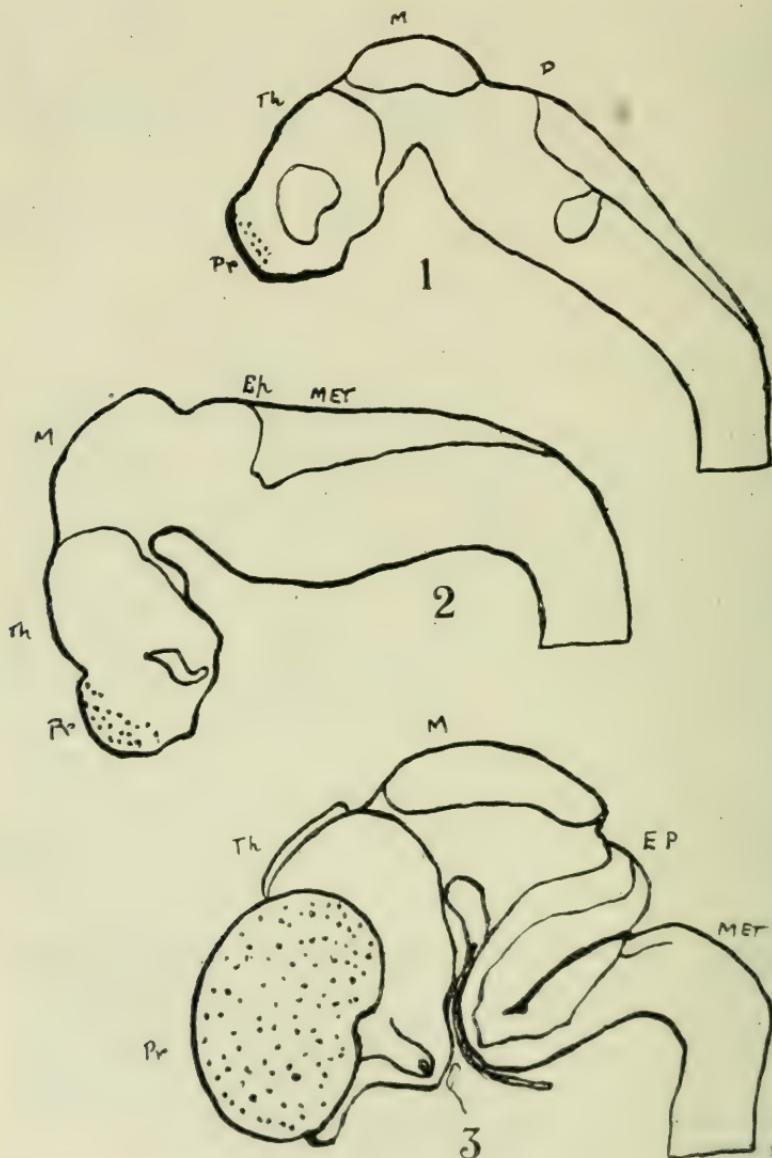
A full description of this case will be published in Ramon y Cajal's 70th Birthday Memorial Volume.

THE LAST TO COME ONTOGENETICALLY AND PHYLOGENETICALLY
THE FIRST TO GO.

We must look at the psychoses from the biological point of view of Hughlings Jackson: "The last cerebral structures to come evolutionally and developmentally are the first to go." It is a fact that primitive people suffer with the same psychoses and psychoneuroses as the most cultured people, but the symptoms are coloured by social usages, customs, religion and traditions, upon the experiences of which the furniture of their minds is largely constituted. There is, however, no essential discoverable difference in the macroscopic or microscopic structure of the brain of "*homo sapiens*," whether he be a cultured European or a primitive man. Indeed, Kohlbrügge found the brains of the native Javanese (Analphabeten) to be heavier than the average European brain. Seeing that these primitive people suffer with the same psychoses as civilised people, culture and civilisation cannot be an essential cause, although, by interference with natural selection and survival of the fittest, civilisation does undoubtedly lead to an increased number of individuals suffering with a genetic germinal deficiency, and therefore of all forms of insanity.

But the question may be asked—Is there a morphological reason why increased depth and extent of the cerebral cortex, in man constituting the main difference of structure of the brain from that of all the lower animals, including the anthropoid apes, should be the seat of a lack of formative activity and of durability akin to that failure of spermatogenesis and of follicle maturation which I have found in the reproductive organs in cases of primary dementia?

If the development of the central nervous system be studied from the earliest stages of growth of the human embryo, we shall see that out of a relatively few of the protomeric cells which form the neural tube with its three primary cerebral vesicles the whole mass of cortical neurones are developed (*vide* illustration after His). Therefore, if there be a defect in the vital energy of the germ-plasm—and we have seen that there is evidence of this in the reproductive organs—such



Brain of human embryos (after His). The dotted region of the prosencephalon represents the protomers from which all the countless millions of cells of the highest psychic level are developed. Fig. 1.—Brain of embryo of about 15 days. Fig. 2.—Brain of an embryo of about 3½ weeks old. The optic vesicle has been cut away. Fig. 3.—Brain of an embryo about 7½ weeks old. Fig. 1 gives an idea of the relative proportion of these protomeric cells which are going to form the great brain as compared with the rest of the brain.

defect would more likely show itself either (1) in arrest of development of the cortical cells as we find is the case in idiocy or imbecility, or (2) by a lack of durability, which will show itself in early life by precocious dementia in adolescence and in later life by presenile dementia. In support of my argument I will show a drawing to illustrate the development of the cortex from the first secondary vesicle, and it is obvious how great must be the formative nuclear activity of a relatively few protomeric cells to lead to the formation of the great brain with its countless millions and millions of cells carrying engrams of species, of race, and of family ancestry.

THE MNEMIC THEORY AND HEREDITY.

According to the theory of the mneme of Richard Semon, there is an identity between the marvellous properties of hereditary matter and the no less marvellous properties of brain. It is characteristic of every living organism to build itself up according to a certain inherited type, and each fertilised ovum is endowed with the formative capacity of building up the bodily and mental characters peculiar to species, race and ancestors. Engraved upon the whole body, including the brain, are all the later evolutionally developed characters, and they are developed ontogenetically in the order of their evolution ; the later characters of ancestry are thus less fixed and organised engrams, consequently are more readily disorganised.

THE MNEME AND SEX CHARACTERS.

Male and female characters are represented in every cell of the body ; the male characters, however, are generally dominant. Now, unlike the male, in which the interstitial cells disappear soon after birth, and do not reappear till puberty approaches, the ovary of the female continues after birth onwards to produce Graafian follicles, and with them thecal cells, which produce an internal secretion. The follicles do not mature sufficiently to undergo dehiscence, but become atretic, and form eventually corpora atretica. The object of this is biological : the internal secretion which is formed by the thecal cells around the Graafian follicles passes into the blood and exerts a sensitising influence upon the cells of the body, including the brain ephorising the female characters. Every cell of the body possesses male and female characters, and the former are dominant ; it may be postulated that the internal secretion of the thecal cells of the Graafian follicles inhibits the male dominance. There are clinical facts and experiments which tend to prove this. Thus young pullets, if their ovaries are removed, develop into birds which look like and behave like cockerels.

ONTogenESIS A RECAPITULATION OF PHYLOGENESIS.

A study of successive periods of myelination of the central nervous system by Flechsig showed that myelination (which may be regarded as evidence of preparedness for function) was present at birth in the two lower levels, but the highest psychic level which is such a predominant feature of the brain of man is not myelinated. The cortex shows no myelination except in the region of the sensory-motor projection areas. The whole cortex is not myelinated till three or four months after birth, and comparison of the same with that of an adult indicates a continuance of myelination of the cortex from birth onwards. That the cortex in the motor area is myelinated in part because the axons of the large Betz cells have acquired a myelin sheath is indicated by Flechsig⁽⁶⁾ in his Atlas, for there is a figure of a brain of a newborn child of 9½ months that lived only one day which shows not only myelination in the sensory-motor projection region of the cortex, but the pyramidal tract in the pons is shown to be myelinated. Moreover, myelinated fibres are seen passing into the corpus callosum. There is complete absence of myelination in the frontal, parietal and temporal lobes. It would thus seem that the sensory-motor projection systems are interpolated into the highest psychic level; they are in, but not of this level.

CONCLUSIONS.

(1) By primary dementia is meant a progressive suppression of function of the highest phylogenetic and ontogenetic level of the central nervous system. This suppression is an irrecoverable condition; it may be preceded or accompanied by suspension of function, which is a recoverable condition. The symptoms due to suspension do not necessarily differ from those of suppression of function, but whereas the former is due to a functional disorder or inactivity of the neurones of the highest level, the latter is associated with and dependent upon an organic defect of the nucleus.

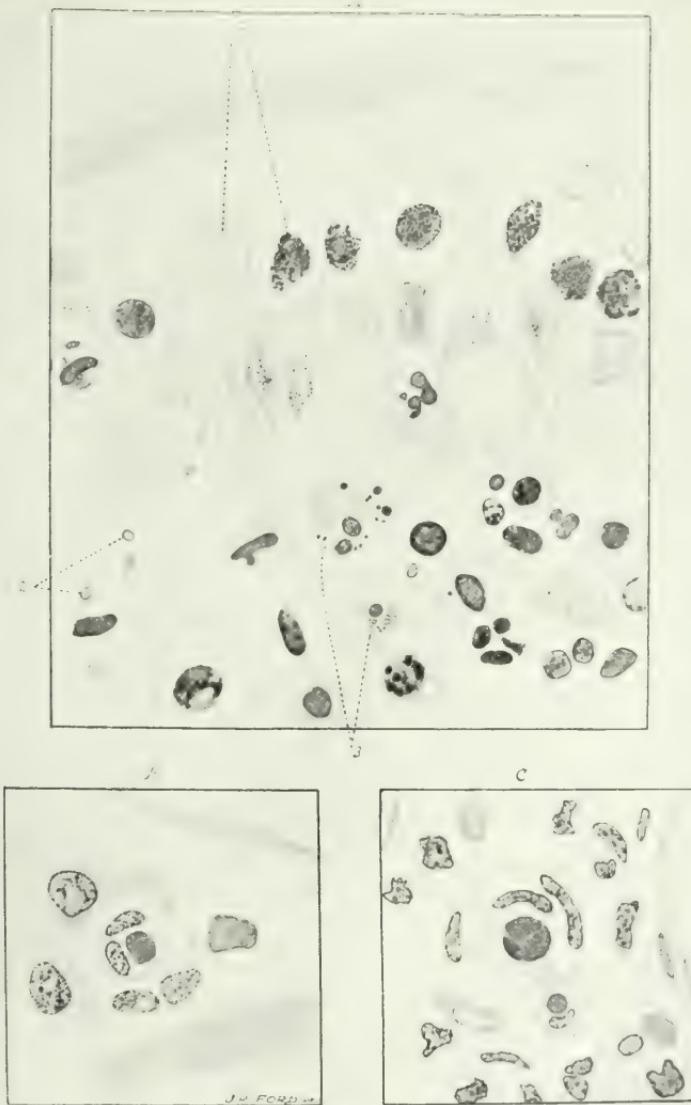
(2) The neurones are complex cells which nourish themselves and are not nourished; they are all present at birth and are endowed with a specific energy, which in the normal healthy nervous system will endure and function for the whole life of the individual.

(3) The neurones of the neo-cortex form the great bulk of the brain. They are developed from a relatively few of the protomeric cells of the neural tube and cerebral vesicles of the human embryo. The neo-cortex consists of six layers of cells, the molecular, three layers of pyramids, a layer of granules and a subjacent layer of polymorph cells. The neo-cortex with slight modifications in certain regions has this uniform architecture.



Nissl stained section of cortex of frontal lobe showing disappearance of many cells of pyramidal layer, some with processes broken off, acute fatty degenerative change of deeper layer of pyramids and polymorph cells. Great increase of neuroglia cells. Magnification 160. To the right are eight cells showing degeneration of cytoplasm and displacement of the nucleus. Magnification 600.

To illustrate paper by Sir FREDERICK W. MOTT.



A. Portion of spermatic tubule examined with oil immersion and ocular 4. A striking feature is the number of spermatogenic cells in which the nucleus possesses little or no chromatin. (1) Nuclei of two spermatocytes. (2) Heads of spermatozoa which gave the acidophil instead of basophil reaction. (3) Formation of spermatids; in one there is obviously a degeneration with formation of acidophil granules. B. Interstitial cells smaller than natural with nuclei deficient in chromatin collected around a small vessel. C. Regressive atrophic changes of interstitial cells, nuclei small, irregular and immature, similar to those found in some cases of advanced dementia praecox. A, B, and C, magnification 1000.

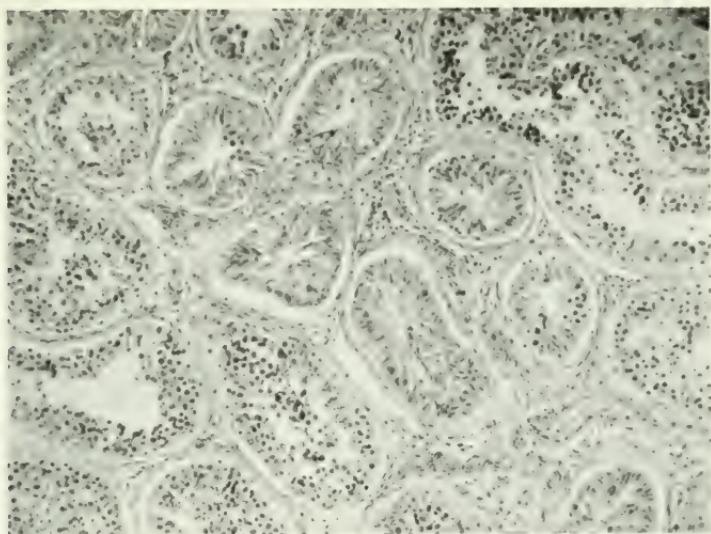


FIG. 1.—Section of testis stained haematoxylin eosin. Regressive atrophy of tubules in all stages. Five tubules in the centre are seen with thickened basement membrane and containing only Sertoli cells. There are no signs of spermatogenic cells and formation of gonads. Other tubules are seen in which there is active spermatogenesis. The interstitial cells are not visible. This may be partly due to the magnification, which is only 110 diameters.



FIG. 2.—Photomicrograph of section of ascending parietal stained by Nissl method. Note the large pyramidal cells are stained deeply, the nucleus is not swollen, the Nissl substance is present. Beneath are the stellate or granule cells with such swollen nuclei that the cytoplasm is hardly visible. There is also marked swelling of the nuclei of the polymorph layer of cells and the small and medium-sized pyramids. Magnification 160.

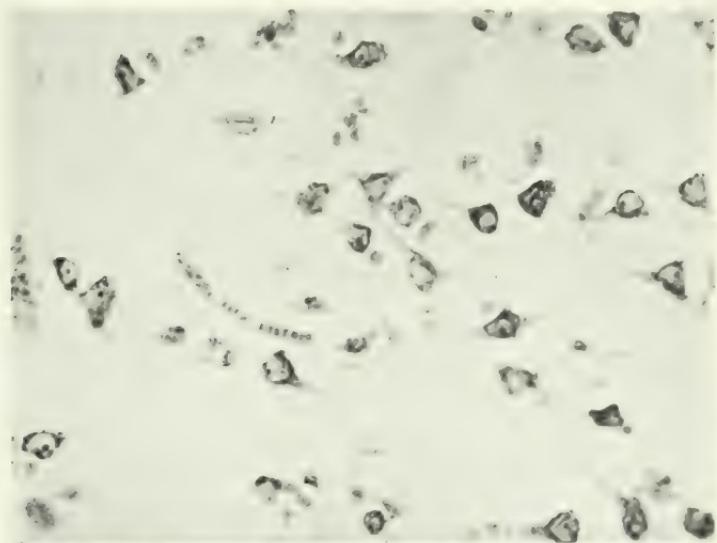


FIG. 1.—Photomicrograph of cells at junction of polymorph and granule layer showing great swelling of nucleus. Magnification 450.

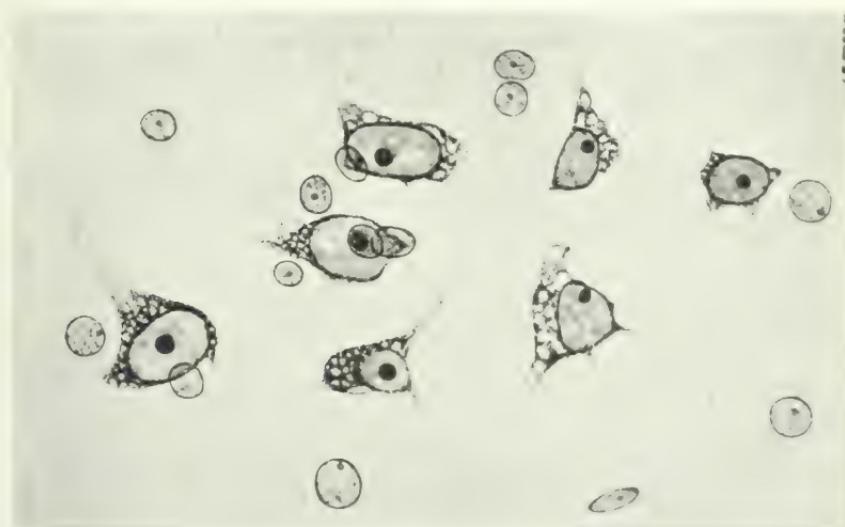


FIG. 2.—Drawing of cells of cortex showing swelling of nucleus. Vacuolation of cytoplasm due to the lipoid having been dissolved out in the mounting in Canada balsam. Frozen sections stained by Scharlach and haematoxylin showed lipoid granules in the cytoplasm. Pale neuroglia nuclei are seen, some sticking on to cells. Magnification 1000.

To illustrate paper by Sir FREDERICK W. MOTT.

(4) The psycho-motor cells of earlier ontogenesis may be regarded as belonging to a lower evolutional level. Their axons are myelinated earlier than those of the other neurones in the cortex.

(5) The supragranular layer is of later phylogenesis and ontogenesis than the infragranular layer; the former is associated with educability, the latter with the reproductive and vegetative functions (Bolton).

(6) This neo-cortex, consisting of a uniform architecture, represents the highest evolutional level. It has attained enormous dimensions in *homo sapiens* as compared with the anthropoid apes and even with that of man's ape-like ancestors. Being of later development it is not as fixed and organised as the lower levels. It has a more refined and delicate poise and is capable of greater variations in its functional activities in response to stimuli.

(7) A genetic inadequacy manifest in the reproductive organs which in the adolescent period energise the whole body would more likely show itself in this latest developed structure with its complex functions. Again a genetic adequacy would likely show itself by arrest of development of this neo-cortex having regard to its development from relatively a few protomeric cells.

(8) This genetic inadequacy may be associated with lack of vital durability, so that physiological stress, psychological stress, or pathological stress may be sufficient to excite, recal or accelerate its functional or organic disorder. (For discussion see July No., pp. 306-9.)

(⁴) "The Social Significance of Dementia Praecox," by Edith M. Furbush, Statistician, The National Committee for Mental Hygiene.—(⁵) *Brain in Health and Disease*, 1914.—(⁶) I am indebted to Dr. Petrie for the clinical and post-mortem notes of this case.—(⁵) *Dementia Praecox and Paraphrenia*. Translation by Mary Barclay, M.A., M.B., from the Eighth German Edition of *The Text-Book of Psychiatry*, vol. iii, Part II.—(⁶) *Anatomie des Menschlichen Gehirns und Reckünmarks auf Myelogenetischer Grundlage*, Erster Band, 1920.

The Influence of the Internal Secretions on the Nervous System.⁽¹⁾

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THE influence of the internal secretions is exerted by means of chemical substances—very few of which have been isolated or satisfactorily examined. Many of these substances closely resemble in their action that of medicaments, especially such drugs as the alkaloids. So far as their physiological action is concerned drugs can be classed in two divisions, *vis.*, those which increase the excitability of irritable tissues, and incidentally induce their activity when quiescent; and those which diminish their excitability, and inci-

(¹) An address given at the Annual Meeting of the Medico-Psychological Association, held in Edinburgh, July 20, 1922.

dently produce quiescence if administered during activity.' As instances of the action of those two kinds of drugs on the nervous system strychnine and morphine may be mentioned; similar examples may be found in the action of antagonistic drugs upon the secreting glands, upon skeletal, plain, and cardiac muscle, and upon protoplasm in general. The principle is of extensive application, some drugs being definitely excitatory, others definitely inhibitory, the effect, whichever it may be, being produced by a reaction between the chemical substance which forms the active constituent of the drug and a constituent of the living tissue, this being in certain cases represented by a special material, termed by Langley "receptive substance," which has in all probability been formed under the influence of the nerves which pass to the tissue. The action of the internal secretions is due to specific chemical substances which act upon or react with constituents of the cells. Such reaction, as in the case of drugs, tends either to increase or to diminish the excitability of particular tissues, either stimulating the living substance to activity or increasing its activity, or decreasing or arresting any activity that may be present. The expression "chemical messenger" was employed by Bayliss and Starling in their work on the action of secretin upon the pancreas to denote any material circulating in the blood which tends to excite a tissue to activity. Subsequently the word "hormone" was invented by Starling as a short equivalent—not, as he is careful to insist, to be confined to the chemical principles of the internal secretions, but to be used also for any chemical substance, of whatever nature or origin, which acts as an excitant; e.g., Starling gives as an example of a hormone the CO_2 of the blood, which, when conveyed to the medulla oblongata, excites the activity of the nerve-cells composing the respiratory centre. Subsequent writers, e.g., Biedl, have displayed a tendency to restrict Starling's term to the active principles of the internal secretions, in place of using it, as he himself proposed, for all chemical substances exciting activity—a proposition in strict accordance with its derivation, which is from the Greek word *ἐνθάω*, I excite. This restriction of the term is the more unfortunate because it has become customary by most authors to include under the term of hormones or excitants substances which have exactly the opposite effect—that, namely, of restraining or inhibiting activity, the custom having arisen probably from the fact that at first the existence of such substances was not sufficiently recognised. Since it is obviously improper to apply the term "hormone" (or "excitant") to inhibitory substances, I have ventured to propose that an analogous term, "chalone," derived from the Greek word *χαλάω*, I restrain, should be employed to designate such substances, and that a general expression denoting their drug-

like character should be used to describe all the specific principles contained in the internal secretions which promote changes in other organs, whether in the way of excitation or inhibition. Such an expression is appropriately found in the term "autacoid," which is derived from the Greek words *αὐτός*, self, and *άκος*, a drug or remedy, *i.e.*, a drug-like substance produced within the body itself: the latter part of the expression being already in general use in the form "panacea" or universal remedy. A striking example of a chalone or restraining principle is furnished by the ovary, which produces in its internal secretion a chemical substance—not as yet isolated—which restrains the development of the male characteristics in the female. When this restraint is lacking, as occurs after removal of the ovaries, a tendency to development of male characters makes its appearance. A hen, for example, deprived of its ovary develops the bodily form, the tail, comb and wattles of a cock, crows like the male bird, and even attempts to "tread" other hens. And if the ovary of another individual is successfully transplanted into such a bird, the chalone which is contained in its internal secretion inhibits the tendency to develop male characters, and these presently disappear, so that the animal again assumes all the characters of a hen. Nor is this occurrence of a chalone in the generative glands confined to the hen. There is one variety of Sebright fowls in which the cocks are hen-feathered. In this breed, as has been shown by T. H. Morgan, the testis contains cells, similar to certain cells in the ovary, which apparently yield a chalone, similar to that of the ovaries of ordinary breeds of fowl. And when the testes are removed from the hen-feathered Sebright cock, the castrated animal assumes the plumage characteristic of the ordinary cock-feathered variety of Sebright. Since, therefore, there are two principles of opposite character yielded by the internal secretions, I shall in speaking of their action upon the nervous system employ the expression "autacoid" as a general term to denote the active chemical agent of any secretion, and the special terms "hormone" and "chalone"—with their adjectives "hormonic" and "chalonic"—to express the mode of action of particular autacoids according to whether this is excitatory or inhibitory. These preliminary remarks are introduced to enable those members of my present audience who are not familiar with the history of the subject, and especially with its nomenclature, to understand exactly what is meant by the expressions I propose to use, in order to avoid the confusion which would otherwise result from the employment, as is so frequently done, of the same term—hormone—in opposite senses.

Of the internal secretions those which are known to exert a direct influence upon the central nervous system are produced by the

generative organs and the thyroid. Other internal secretions, it is true, may influence the nervous system, but they act either on peripheral nerves or by their effects on general metabolism, and are not therefore to be regarded in the same light as those which directly affect that system. And as the time at our disposal is limited, it will be best to confine ourselves mainly to the action of these two, with, in addition, a brief reference to the parathyroids.

THE INTERNAL SECRETION OF THE GENERATIVE ORGANS.

We may begin by considering the influence of that of the organs of generation, since this has been longest known, having been the subject of experiment and observation from time immemorial. It has not, however, been long recognised that this influence is exerted by an internal secretion. For before the subject of the internal secretions became a special object of study, it was assumed that changes in the nervous system associated with the generative organs were entirely due to the excitation, or absence or excitation, of their afferent nerves, whereas it is now commonly conceded that such changes are brought about by the autacoid substances yielded to the blood by the glands in question. These autacoids, however, are not formed by the gametes or generative cells themselves, but by other cells in the gonads (testis or ovary) which are known as the "interstitial cells," or collectively as the "interstitial gland." The evidence on this point is conclusive. For the reproductive cells themselves may be destroyed by X rays or otherwise, or may remain congenitally undeveloped, yet if the interstitial cells of the testis or ovary be left, not only do the bodily secondary characters significant of the sex still appear, but the mental characters as well. If these interstitial cells are removed in the adult animal along with the true gonad—as by complete castration—the effects of the operation are not confined to a tendency to retrogression on the part of the accessory organs of generation and of the external or extra-genital secondary sexual characters, but extend to the functions of the nervous system, the mental attitude and disposition of the individual becoming also strikingly altered. If the operation is performed before puberty, a condition of infantilism is established; and, by grafting one or other gonad, either male or female characteristics may be produced—although the implanted organ may or may not—(most commonly does not)—produce sex cells. In man the effects of castration in the male sex have been known from the earliest ages: in woman they are less familiar as the result of operation, although not unknown; but they are evident in cases of ovarian retrogression or destruction by disease, and have been described by many authors.

To put the matter shortly, the female is female not only because she produces ova, but because she also produces in the ovary along with ova certain special cells which secrete a hormone having the property of stimulating the development of the secondary characters peculiar to the female, and a chalone which suppresses those peculiar to the male sex: while the male is male not only because he produces spermatozoa, but because he also possesses certain special cells in the testicle secreting a hormone which stimulates the development of the secondary characters peculiar to the male, and a chalone which suppresses those peculiar to the female sex. These autacoids have not yet been isolated, but we are justified by analogy in assuming their separate existence. For the same reason we may regard it as probable that—as compared with such substances as proteins—they are of a relatively simple chemical composition, so that their isolation and chemical analysis and even eventually their synthesis will be only a question of time. If this view is regarded as optimistic, we may point to the autacoid to which the secretion of the thyroid owes its activity—which produces just as profound changes in the organism as do the autacoids of the sexual glands. Yet, as we shall see in discussing the thyroid gland, its chief autacoid has already been obtained in a crystalline form, and its chemical constitution exactly determined, so that its synthesis is merely a matter of detail, and indeed has perhaps already been effected. I need hardly add that the isolation, analysis and synthesis of the autacoid of the suprarenal medulla is now almost a matter of ancient history.

The influence of the autacoids of the generative glands upon the nervous system is strikingly exemplified by the psychic changes which take place, along with the rapid development of the gonads, with the advent of puberty in both sexes, and by those which occur at the time of the climacteric in the female sex. It is true we have not the same accumulation of experimental evidence of the dependence of these psychic changes on the internal secretions of the gonads which exists for the development (or retrogression) of the somatic secondary sexual characters, and the belief that such psychic effects may be produced through afferent nervous impulses from the testis or ovary is not so readily capable of being controverted as in the case of the somatic effects. But reasoning from analogy and judging from the altered behaviour of animals in which experiments upon the subject have been frequently carried out, there seems no reason to doubt that the increase or suppression of the internal secretions of the gonads is accountable as well for the psychic changes observed as for those of a somatic character. It is possible to suppose that the psychic changes may not be brought about by a direct action of the gonadal autacoids on the nervous system, but that they may

influence that system indirectly through other organs, such as the thyroid—which, especially in the female, is known to undergo marked alterations with the changes in the sexual cycle. But this supposition is hardly probable in view of the fact that the psychic changes accompanying alterations in sexual life are not identical with those which accompany excess or diminution of thyroid secretion, nor can they be prevented by thyroid treatment.

Apart from the general effects of the gonadal autacoids, a direct effect of a special autacoid upon the central nervous system is evidenced by the experiments of Nussbaum on the frog, which also furnish one of the most striking proofs that the development of a secondary sexual characteristic is dependent on an internal secretion of the testis. Nussbaum found that male frogs from which both testicles have been removed before the copulation period not only have no tendency to seek the female, but do not develop the swelling of the thumb or the concomitant hypertrophy of the forearm muscles which are essential for the prolonged reflex of the sexual embrace. But if a piece of testicle from another frog is implanted in the dorsal lymph-sac of the castrated animal, the hypertrophy of thumb and arm muscles soon begins to appear, disappearing, however, again as the implanted piece of testicle undergoes degeneration and absorption. Nussbaum further found that if, in a normal frog, the nerves of one arm are severed, those of the other remaining intact, the hypertrophy of thumb and arm does not occur on the side of section, although appearing as usual upon the side the nerves of which are intact. This shows that for this particular sexual development, the influence of the central nervous system is required. Since it concerns a pure reflex phenomenon, the lesson of this experiment is not entirely applicable to secondary sexual characters which do not involve the nervous system. But it is none the less an indication of the fact that changes which are brought about by autacoids are not necessarily due to the direct action of this upon the tissues concerned, but may be effected, or at least regulated, by the nervous system. In this respect also we recognise a resemblance between autacoids and drugs, since many of the latter produce their effects upon the tissues through that system.

It has further been found that injection of testicular substance from mature frogs causes the embrace-reflex to become possible in castrated frogs, or in frogs which are naturally impotent from imperfect development of the testicles. All these changes are due to a special autacoid which is formed in the testicle only during the spawning period; it is not contained in the testicles at any other time, and disappears after spawning is finished. Its nature is chalonic. For it has been shown (Steinach) that the embrace-reflex is at any other than the spawning period prevented by inhibitory impulses passing to the cord from the optic lobes; since the reflex becomes operative at all periods if the optic lobes are removed. This particular autacoid has therefore the effect of stopping these inhibitory impulses and thus permitting the reflex to come into activity.

But these observations and experiments of Nussbaum, although highly instructive, constitute a special case. With regard to the general effect of the gonads, the opinion which formerly prevailed that the phenomena of ovulation, menstruation, pregnancy and parturition are brought about through the nervous system has long been given up. It is now nearly fifty years since Goltz showed that a bitch with the lumbar cord completely removed can come into heat, become pregnant, and bring forth and suckle a litter of pups in an apparently normal manner. There is here no question of the nervous system being concerned: all the successive changes must have been brought about by internal secretions, mainly no

doubt of the ovary. Further, the dependence of menstruation upon secretion of the ovaries has been shown in monkeys (Halban) by removing those glands from their normal position and successfully implanting them in an entirely different situation. As long as they were left undisturbed menstruation occurred as usual, but on removing the grafts it entirely ceased. It has also been shown (Marshall and Jolly) that implantation of the ovary of a bitch in heat, or even injection of extract of such an ovary, will cause certain of the phenomena accompanying heat to appear in another bitch which had previously had its ovaries removed. Moreover, the successful transplantation even of a piece of ovary into an animal from which both ovaries have been removed will prevent the retrogressive changes of the uterus which otherwise result from castration. Transplantations of ovary have frequently been successfully effected in the human subject, with like results. In none of these cases can there be any question of the complicity of the nervous system in the reaction.

Brown-Séquard, who was the first to investigate the effects of the injection of organ extracts, and especially of extract of testicle, administered hypodermically, was of opinion that such medication could produce a kind of rejuvenescence, both bodily and mental. This he ascribed to an internal secretion of the organ acting upon the nervous system. But other observers failed to obtain like results, and Brown-Séquard's experiments, which were conducted upon himself, have been generally discredited or set down to auto-suggestion. There has, however, of late years been a revival of the notion that the secretion of the interstitial cells of the testis can to some extent combat the changes which occur as the result of advancing age in the body generally and in the nervous system in particular. The experiments on this subject differ from those of Brown-Séquard in that in place of the injection of testicle extract, the vas deferens is occluded by ligature. This operation causes degeneration and disappearance of the spermatozoa and of the spermatocytes from which these are produced, so that the seminiferous tubules become almost empty, but the interstitial tissue of the organ undergoes hypertrophy, and presumably furnishes an increased amount of its special secretion to the circulating fluid. It is stated that this has the same effects as those claimed by Brown-Séquard for the injections he employed, *viz.*, a tendency to defer or relieve senescence and the causation of a feeling of rejuvenescence. But these results are hardly sufficiently established to command acceptance: whether they will survive the test of further experiment remains to be seen.

It is not possible to perform similar experiments with the ovaries, and it is generally conceded that extracts of these administered hypodermically produce no noticeable effect on the general system,

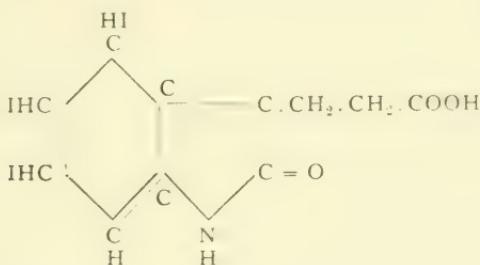
although it was claimed by Brown-Séquard that they produce effects similar to, but more ephemeral than, those which he described as yielded by testicular extract. Nevertheless extracts, either of the whole ovary or of the corpora lutea are in frequent therapeutic use in ailments of the genital system, which may, it is believed, be influenced by them. Their effect in bringing on the changes which characterise menstruation has already been alluded to. Moreover, the internal secretion of the ovaries, and especially of the corpora lutea, appears to be concerned with the preparation of the uterus for the fixation of the embryo, and with the functional evolution of the mammary glands. These are, however, direct effects, and, so far as we know, they have no bearing on the relation of the internal secretions to the nervous system.

Although, therefore, it would seem that the effects produced upon the nervous system by the gonads are due, at least in great part, to the action upon it of their internal secretions, this statement does not exclude the possibility of the nervous system being also influenced by afferent nervous impulses arising in the gonads. Indeed, it is probable that, as with most other organs in the body, both the nervous system and the internal secretions take a share in the production of the results obtained, the effects being in each case due to alterations in the balance between activation and inhibition, both of which can be brought about either through nerves or through autacoid substances carried by the blood and acting as chemical agents upon the cells.

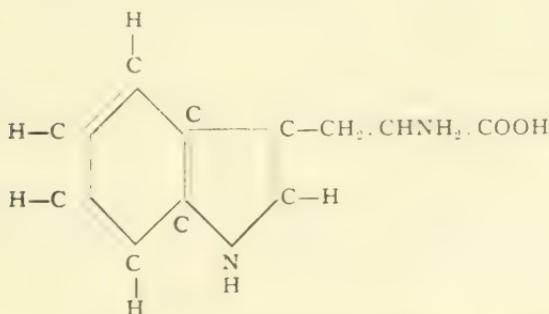
THE INTERNAL SECRETION OF THE THYROID.

As Sir Frederick Mott is to follow me on the special subject of the reproductive organs, it would be superfluous on my part to attempt to deal with the subject at greater length, although in dealing with the physiological action of internal secretions on the nervous system, it is impossible to omit all mention of organs which exert so profound an influence upon that system as these are known to do. I will therefore proceed to the consideration of the secretion of the thyroid gland, which of all the internal secretions is the one the influence of which upon the central nervous system is most easily demonstrated. For if the thyroid is removed surgically, or becomes atrophied, all the functions of the nervous system are depressed. Those which are latest in development are most in abeyance; the brain ceases to be active: the athyroid individual becomes a cretinous idiot. There are evident changes in many nerve-cells which probably account for the functional disturbances of the nervous system. But alterations are not confined to that system, for metabolic and other

changes occur in all parts of the organism: growth is retarded; fat is laid on; the skeleton is profoundly modified; the connective tissues and skin become swollen; the face puffy; the epidermis dry and liable to excessive desquamation; basal metabolism is diminished; the body temperature lowered; the movements sluggish; the pulse and respiration slowed. The picture is a familiar one. Something has been removed which promotes the activity of all the functions of the body, and especially the functions of the nervous system. This something is the principal autacoid of the secretion. It has been isolated in a crystalline form and examined by Kendall, and has been termed by him "thyroxin." It has the formula $C_{11}H_{16}O_3NI$, and contains, therefore, as will be seen, at least 65 per cent of iodine.⁽²⁾ The structural formula of thyroxin, at least of one of the forms in which it has been examined, is :—



This is similar to that of tryptophane:



from which it may be considered to be derived. It occurs in thyroid juice in combination with protein as a substance termed "iodo-thyroglobulin." The evidence that thyroxin is the chief active agent of the secretion is obtained by comparing its physiological effects with those of thyroid juice or thyroid extract: they are found to be in most matters identical. At the same time it does not follow that thyroxin is the only autacoid present in thyroid secretion. There are certainly others, but very little is known about them, and there is no evidence that they directly influence the nervous system.

The symptoms which have been described as resulting from thyroid removal or thyroid atrophy can all be combated—as Murray first showed⁽³⁾—by administration of thyroid juice, which, if given in such an amount as just to balance the deficient secretion, will restore the patient completely and render him a healthy, intelligent, and useful member of society, always provided that the affection has not lasted long enough for permanent changes to have been produced from lack of the secretion—although even then the amelioration of both bodily and mental conditions is pronounced. Nor does it matter from what species of animal the thyroid extract is prepared.

Every physician is familiar with the alteration in the picture—especially in a young subject—the transformation of the apathetic, slobbering idiot into the alert, bright, healthy-looking child! This is the nearest approach to a miracle which is met with in medicine, and may well be viewed with astonishment by those to whom it is revealed for the first time. It is, indeed, a real subject for wonderment that the activities of the nervous system, and especially its highest functions, should be dependent upon the addition to the blood of a chemical substance of relatively simple constitution formed in an organ which has no morphological connexion with the system which its secretion so profoundly affects! For there is no substitute for the secretion of the thyroid. Iodine in any other form than that in which it occurs in this organ is without effect on thyroidless animals, although if administered to animals which are still in possession of a thyroid it markedly increases the activity of the gland.

It is further remarkable that the thyroid is constant in the Vertebrate series. (Whether it has any sort of representative in Invertebrates is unknown.) In *Amphioxus* and *Petromyzon* it is an externally secreting gland pouring its secretion into the mouth, and the study of its development in all Vertebrates shows that it is morphologically to be regarded as a buccal secreting gland. Possibly this accounts for the fact that its juice is the only internal secretion which can be administered *per os* just as effectively as if passed directly into the blood or lymph.

PHYSIOLOGICAL ACTION OF THYROID.

The principal autacoid of the thyroid is the most powerful excitant of metabolic processes known. In a condition of hypothyroidism, such as occurs when the gland is atrophied or surgically removed, the metabolism of the body during a period of rest and fasting (basal metabolism) may be reduced by 40 per cent., and can readily be brought back to normal by thyroid administration. If given to normal subjects the basal metabolism mounts rapidly, more or less

parallel to the dosage, and the increase of metabolism causes loss of body-weight from the increased oxidation of the tissues—the fat being the first to go; hence the practice of thyroid administration in obesity. The rise in metabolism is produced, not by acceleration and augmentation of the chemical processes of any one tissue in particular, but by the action of the autacoid on almost every cell in the body. In many organs it tends to promote rapid cell-division, and even cells which usually never show any sign of division—such as the secreting cells of the alveoli of the pancreas—exhibit numerous mitoses after a short course of thyroid feeding (Kojima).

But what concerns us here is the effect produced by the thyroid autacoid on the central nervous system. The question how that effect is brought about—whether directly by exciting the protoplasm of the nerve-cells, or indirectly by affecting their metabolic processes, is undetermined—and an attempt at its solution, although of great physiological interest, need not now detain us. If thyroid extract is administered to a normal individual—the dose varies with the activity of the extract and with the idiosyncrasy of the subject—signs of nervous excitation soon show themselves. There is a feeling of restlessness: the heart beats rapidly and often irregularly; the respirations are fast and shallow; the blood-vessels are dilated; the skin is flushed and feels hot; the activity of the sweat-glands is increased; there may be diarrhoea. With large doses the psychical excitement is accompanied by hallucinations, and may even simulate mania; there is sleeplessness; tremors of the limbs are common, and the reflexes tend to be exaggerated. In extreme cases there may be exophthalmos and dilated pupils. The increased action of the heart is accompanied by hypertrophy and dilatation, sometimes to an alarming extent. On ceasing the administration, the symptoms which it has produced soon subside. Some of the effects—those on the heart and eye and sweat-glands—are similar to the results obtained by exciting sympathetic nerve-fibres and resemble those produced by adrenalin; but others—such as the dilatation of the blood-vessels—are directly contrary; and the tremors of the muscles and the psychical excitement are also obviously not referable to sympathetic excitation, but are probably the result of the action of the autacoid or autacoids on cells of the central nervous system. This may therefore be the case with the “sympathetico-mimetic” effects as well; for, as we now know, the sympathetic is not an independent system, but originates in cells of the central nervous system.

Numerous experiments have been made to determine whether the amount of adrenalin formed in the suprarenal medulla is influenced by thyroid secretion. Herring, in one series of experiments, took three cats of about the same size—A, B and C. A was thyroidec-

mised (but the parathyroids were included in the removal), B was used as a control, C was fed with addition of thyroid to its ordinary diet during 21 days. All were otherwise kept under the same conditions as regards food, and were killed at the same time. The adrenalin in their suprarenals was extracted completely with 30 c.c. of Ringer's fluid and 2 c.c. of each extract was injected into the jugular vein of a pithed cat, the relative effects being recorded at the same place on the smoked paper of the kymograph. The tracings show that A has the least adrenalin, C the most, whilst B occupies an intermediate position. There is therefore an absolute increase of adrenalin in the thyroid-fed animal as compared with the normal. The decrease in the thyroid-deprived animal may, however, be in part due to the concomitant removal of the parathyroids in this experiment.

Later experiments on rats by the same investigator confirmed this conclusion of an absolute increase in amount of adrenalin produced by thyroid feeding, but show that the whole suprarenal capsule, both cortex and medulla (but the cortex more than the medulla) is enlarged under this treatment, so that the percentage amount of adrenalin in the capsules may be somewhat decreased. In female animals, which are more susceptible of the effects of thyroid feeding than males, not only the relative but even the absolute amount may be diminished. It cannot therefore be affirmed for all animals that thyroid feeding increases the adrenalin content of the suprarenals—still less that more adrenalin is poured into the blood. There is nevertheless a considerable bulk of evidence that adrenalin is poured out into the blood of the suprarenal veins in greater quantity as the result of the injection into the blood-stream of thyroid extract, although this evidence is, as we shall see, not beyond question.(4)

Admitting that adrenalin normally under influences passing down the splanchnic nerves is secreted by the cells of the suprarenal medulla into the blood of the suprarenal vein—where its presence may be detected both by chemical and physiological methods—it is obvious that it must pass from the suprarenal vein into the inferior vena cava; nevertheless no means has been found to be sure of its presence in the general circulation. To this point I shall have to return in connexion with the subject of exophthalmic goitre, which must now claim our attention.

In exophthalmic goitre there is strong evidence that the thyroid is in a condition of superactivity. It is true that there is less colloid and probably less thyroxin in its vesicles, but this is what one might expect in an over-active gland, which would be pouring out its secretion into the blood as fast as it is formed—instead of storing it up in the alveoli, as one finds to be the case in endemic goitre. The gland itself—normally one of the most vascular organs in the body,

receiving in proportion to its size five times as much blood as the kidneys—is enlarged and hyperæmic: its arteries are dilated so that the tumour which it forms may pulsate with the beats of the heart; its vesicles are not rendered spherical by distension with colloid, nor is their epithelium flattened as in a normal gland, and to an exaggerated degree in endemic goitre; but they are irregular, and the epithelium tends to be columnar. The symptoms of the disease resemble those of hyperthyroidism such as is caused by excessive thyroid administration. The general and basal metabolism is increased; there is loss of flesh; diminished ability to assimilate carbohydrates, so that alimentary glycosuria is easily produced; the blood-vessels are dilated and the face flushed; the heart palpitates and its beats are rapid and often irregular; the respirations are shallow; there is often profuse sweating; the expression is anxious and restless; there is nervous and psychical excitement and often muscular tremors; the palpebral aperture is wide; the pupils often dilated and the eyes prominent; diarrhea is common. These are all effects such as can be produced by thyroid feeding—although it is only rarely that the special symptom of eye-prominence which is characteristic of advanced stages of the disease and has given it its name is seen as the result of thyroid administration. Evidently many of the symptoms are the result of the action of a toxic agent upon the nervous system, and there can be little doubt that this toxic agent is an excess of a hormone contained in the internal secretion of the gland.

Even more distinctly than in the case of thyroid administration certain of the symptoms above enumerated closely resemble those produced by adrenalin. This is particularly the case with the acceleration of the heart, the dilatation of the pupils, and the prominence of the eyeball with its concomitant increase of the palpebral aperture, and it has by some been supposed that these symptoms are produced, not by the thyroid hormone itself, but by its action in liberating an unusual amount of adrenalin from the suprarenals. Alternatively they might be explained by supposing that the thyroid autacoid renders the endings of the sympathetic nerves—which are stimulated by adrenalin—more sensitive to the action of that hormone. Asher, of Berne, and his fellow-workers have published a large amount of evidence in support of this supposed property of thyroid secretion. Their experiments mainly consist in determining the least possible electrical stimulus which will produce a given result on exciting the nerve under investigation (*a*) before and (*b*) after administration of thyroid extract by intravenous injection or otherwise. Similar experiments have been made by employing an intravenous injection of adrenalin as the exciting agent, and determining the extent of its

effect before and after thyroid administration. Dr. Dryerre, in my own laboratory, has lately made a large number of experiments of this nature with the object of confirming or otherwise the Berne results. There are two main sources of difficulty in such experiments, *viz.*, (1) the exact control of the intensity of the artificial stimulation—electrical or other—which is employed; and (2) the spontaneous variations which show themselves, and which are due to physiological causes the nature of which it is impossible to determine. So far as they have gone Dryerre's experiments have not tended to support Asher's theory. But the investigation must be carried further and all sources of error as much as possible eliminated before any definite statement can be made regarding it.

With reference to the question of hyperthyroidism in exophthalmic goitre—as we have already seen in that produced by thyroid feeding—the fact that only some of the symptoms caused by adrenalin are present, whilst others are conspicuous by their absence, points to the fact that it is not only by exciting an increased secretion from the suprarenal medulla that the thyroid autacoid in the blood exercises its activity. It probably has a direct action on cells of the central nervous system—some being affected more than others. To explain its adrenalin-like effect we might assume that certain cells in the cord from which sympathetic fibres arise are amongst those stimulated by the thyroid hormone; or, alternatively, that the thyroid hormone excites cells in higher centres which influence those giving origin to the sympathetic fibres.

In connection with this subject we have to bear in mind that the thyroid secretion itself is under the influence of the nervous system. Its principal nerve supply is from the cervical sympathetic, although, according to Asher and Ossokin, it also receives fibres from both superior and inferior laryngeals and from pharyngeal branches of the vagus. But Cannon and Cattell obtained a current of action from the gland when the cervical sympathetic was stimulated, whereas no such effect was obtained on stimulating the vagus. The same result was got when adrenalin was injected. And in animals in which a phrenic nerve had been cut and its central end joined up with the peripheral end of the cervical sympathetic by such means that its fibres might be conducted to the gland and find their way to its cells, Cannon and Fitz were able to obtain symptoms of hyperthyroidism which disappeared on removal of the thyroid of the same side.⁽⁵⁾ So that not only does the secretion of the thyroid stimulate the central nervous system, but, through its secreting nerves, the central nervous system excites the thyroid to increased secretion—a vicious circle being thus set up, which may perhaps account for the obstinacy with which Graves's disease resists treatment. Nor can, as might

perhaps be supposed, one cut the circle by severing the cervical sympathetics, for these nerves contain the vaso-constrictors to the gland and their severance will increase the blood-flow within it, and in all probability more of its hormone will be taken up by the circulating fluid. We must also remember that there will be a liability for the cells to which the sympathetic fibres are distributed—whether secreting cells or peripheral nerve-cells—to be rendered hypersensitive to the action of adrenalin, which is apparently poured out in increased amount under the influence of a hormone produced by the thyroid, and this may be responsible for some of the phenomena of hyperthyroidism.

To this question of the possible increase in the adrenalin of the blood I shall have to come back immediately. But before discussing it I should like to open up another question, a positive reply to which is generally assumed, *viz.*, Are we justified in believing that the thyroid hormones are normally present in blood and increased in amount in exophthalmic goitre?

Before this can be answered we must see what tests can be applied to detect the presence of small amounts of the thyroid secretion in the circulating fluid. Chemical tests fail us here, partly by reason of the complex nature of blood, partly by reason of the infinitesimally small amount of the secretion in the blood at any one time. Traces of iodine have been described in blood, but, even if present, it is in much too small an amount to be estimated quantitatively, nor do we know that it is present in the form of thyroxin or of iodo-thyroglobulin. We are therefore confined to physiological tests, three of which are applicable, *viz.*, the action of thyroid on intestinal muscle, the aceto-nitrile test of Reid Hunt, and the remarkable property which thyroid possesses of hastening the metamorphosis of tadpoles (Gudernatsch).

(a) *The intestinal muscle test.*—This test consists in suspending in Ringer's fluid a strip of longitudinal muscle from the small intestine of any animal—ileum of the cat by preference—and passing into the vessel containing it some of the same solution to which a known small amount of the fluid to be tested is added. Precautions are taken to keep the fluid oxygenated and warmed to about the body temperature, and tracings are taken of the spontaneous contractions of the strip, magnified by the recording lever. Such a strip if fed continually with fresh Ringer will continue for hours to beat with regularity. If a minute amount of thyroid juice be passed into the fluid surrounding the intestinal muscle, its contractions are both accelerated and increased in extent. If normal human serum is passed in—even in very small quantity—there is also a marked acceleration and augmentation of the contractions. But if serum

from a case of exophthalmic goitre is used in place of normal serum, the effect is much more marked, the piece of intestine often passing into a condition of extreme contraction, which may last for several minutes, even after the serum which produced the effect has been washed away.

This would be both a definite and a delicate test for the presence of a thyroid hormone in the blood if such an effect were confined to thyroid extract. This, however, is not the case, for, as Dr. Alexander Young—working some years ago in my laboratory—showed, there are other substances which might be present in blood and which are capable of increasing the extent if not the rate of the intestinal beats. One of these is extract of posterior lobe of pituitary, the other choline. But to get any effect with the former, the strength of the solution has to be at least 2 per cent. of the dried gland—an impossible amount to be present in blood. On the other hand, Young found that cholin would produce some effect at a dilution of only 1 in 50,000, although the action was not very strong even with 1 in 5,000, whereas thyroid extract, even dilute, produces a marked effect. There is reason to believe that a trace of choline is present in blood, and it has also been found in thyroid tissue. Moreover, the action of choline is abolished by atropin, which is also the case with that of thyroid extract, although large doses are needed for this. As the action of exophthalmic blood serum on intestinal muscle is more marked than that of normal serum, it is probable that there is present in it an excessive amount of the particular thyroid hormone, which is responsible for increasing the activity of the contraction of intestinal muscle. This hormone is certainly not thyroxin, for a solution of thyroxin has no more effect on intestinal muscle than the dilute alkali which must be added to bring it into solution. It may be choline, although there is no strong evidence for this.

(b) *Reid Hunt's aceto-nitrile test.*—Reid Hunt found that a minimal lethal dose of aceto-nitrile administered to a white mouse was no longer fatal if the animal had been previously fed with thyroid. He used this test to determine if such extract was present in exophthalmic blood, and obtained a positive result. He accordingly came to the conclusion that the blood in Graves's disease contains an unusual amount of thyroid secretion.

(c) It is not certain that the tests we have considered are specific—indeed, the first one is certainly not, since it is not produced by the specific autacoid, thyroxin, and its effect may be simulated by other substances than those yielded by the thyroid. And although Reid Hunt claims specificity for the aceto-nitrile test, it is not certain that other animal extracts may not to some degree share with thyroid extract the property of antagonising the poison of aceto-nitrile.

The third test, that namely of inducing precocious metamorphosis in tadpoles, is, however, so far as we know, quite specific, and is manifested with small amounts of thyroid, which may be administered for a very short time. It has seemed to me therefore of importance to apply this test to blood, and especially to the blood of exophthalmic patients; and during the spring of the last two or three years I have taken the opportunity of examining the behaviour of tadpoles which have been placed or kept in water to which blood-clot or serum from normal and exophthalmic individuals has been added, compared with that of other tadpoles kept under otherwise similar conditions as controls. I have varied the experiments in many ways—sometimes leaving the blood after it had been coagulated under alcohol in the vessel with the tadpoles, without other food, so that they actually ate portions of the clot; sometimes adding serum—normal and exophthalmic—to the water in which they were kept, with the weed which formed their food; sometimes making an extract in water of the dried blood and placing the tadpoles in this at various dilutions for a few hours. But I have never seen any sign of accelerated metamorphosis in animals treated in these ways either with normal or with exophthalmic blood. So that this—the only really specific test—has given a negative reply to the question whether the specific thyroid hormone, thyroxin, is present in appreciable quantity.

One unexpected result showed itself. Of the tadpoles which were immersed for some hours in a dilute extract of the dried blood—normal and exophthalmic—those in the extract of dried exophthalmic blood, although not lively on being stirred up, became quite active after being washed and transferred to water, in which they continued to live indefinitely, without, however, showing any signs of acceleration of metamorphosis; whereas those which had been in the extract of dried normal blood were found dead the next morning. I was able to make a similar experiment with two samples of human milk which were kindly furnished me by Dr. A. Ritchie—one normal, the other from an exophthalmic patient—with the same result. The tadpoles in diluted normal milk died; those in exophthalmic milk, equally diluted, remained well and lively, and continued to live indefinitely on being transferred to water, but without developing any signs of precocious metamorphosis.

The negative result of the tadpole test, which is specific for thyroid, does unquestionably tend to cast some doubt on the validity of the positive results of the other two tests—at any rate so far as thyroxin is concerned. Nevertheless it is difficult not to believe that there is constantly a very small amount of thyroid secretion circulating in the blood, and that this amount is increased in exophthalmic goitre. If this is so, the negative result with tadpoles must be due to the very minute percentage amount of thyroxin in the blood, for it has not been determined what amount is necessary to produce the metamorphotic change. This is a question which can, however, be decided, and I hope that we shall be able to answer it by the next tadpole season.⁽⁶⁾

There is one point which is brought out very clearly in the intestinal muscle test, *viz.*, that neither in normal human blood nor in blood from exophthalmic patients is there any appreciable amount of free adrenalin. For adrenalin, as is well known—even in the proportion of one to a million—arrests or inhibits the contractions of intestinal muscle, whereas so far from getting inhibition the contractions are increased by both kinds of serum, and notably so by the serum of exophthalmic blood.⁽⁷⁾ This raises the question as to what becomes of the adrenalin which is normally being automatically poured into the circulation from the suprarenal veins (in which its presence can be detected by both chemical and physiological methods), and in greater amount under certain abnormal circumstances—such as fright, asphyxia, stimulation of splanchnics and injection of thyroid and perhaps of other extracts. The question is of great interest, although it would carry us too far from our present subject to follow it up. I venture, however, to suggest that there are two possible explanations, *viz.*, the adrenalin may enter into some form of combination or absorption with some constituent of the blood which neutralises its activity within that fluid, although the tissues as they require it may have the power of liberating and utilising the autacoid, which, after exercising its particular action, is destroyed, perhaps, as suggested by Cramer, as the effect of formaldehyde, which is formed in the tissues in the course of metabolism. The other explanation is that the dilution of adrenalin in the general circulation is always too great to enable it to produce any effect, except on tissues which have been rendered hyper-sensitive to its action either by previous denervation or by the presence of a sensitising agent such as has been alleged to be furnished by the thyroid secretion.

There is, however, one reason for regarding it as improbable that adrenalin takes an important part in producing the symptoms seen in exophthalmic goitre. For some cases of this affection are successfully treated by the administration of adrenalin, which, if the above were true, would produce exacerbation of some of the most distressing symptoms of this affection. On the other hand, thyroid administration in Graves's disease does produce exacerbation of the symptoms, whilst surgical removal of the enlarged gland or of the greater part of it is in severe cases the only efficient remedy for the disease. Both of these facts point to the pouring of an excess of thyroid secretion into the blood as the cause of the symptoms, and since thyroid secretion does not itself directly affect the heart nor produce protrusio bulbi, nor affect the pupil, whilst on the other hand it unquestionably acts upon the central nervous system, it seems reasonable to suppose that all the pronounced symptoms of the disease are primarily caused by its action on nerve-cells.

THE PARATHYROIDS.

There is one other group of endocrine organs which cannot be left out of consideration in dealing with the effect of internal secretions upon the nervous system. In all the earlier experiments in which the thyroid was extirpated—including these performed by surgeons in removing the gland for goitrous tumours—the parathyroids were usually included. This accounts for the fact that, in many of these, acute nervous symptoms were manifested which are never seen when the operation is confined to the thyroid. It was not until 1880 that the parathyroids were recognised as distinct structures by Sandström, nor until 1891 that their functional independence was shown by Gley. Long after this some physiologists clung to the idea that they might be undeveloped portions of thyroid tissue. But even these "die-hards" have at length been compelled to yield to the evidence that developmentally, structurally and physiologically the parathyroids are organs quite distinct from the thyroid and play an entirely different *rôle* in the organism.

The parathyroids do not furnish a secretion which acts in any way upon the central nervous system, yet their complete removal is the cause of the production of remarkable and characteristic effects upon that system. It was early noticed amongst the results of removal of the thyroid both in animals and man that in many cases, in place of or in addition to the chronic effects upon growth and metabolism and on the nervous system which are caused by such removal, peculiar symptoms of nervous excitation show themselves. These take the form of muscular tremors and convulsions of a clonic character, passing eventually into fits (but without consciousness being affected), and often terminating fatally—sometimes within a few days. Besides these symptoms the heart-beats are quickened and augmented; there is profuse salivation; sometimes vomiting and diarrhoea. The body temperature rises during the fits, and the respirations become rapid and gasping. If the affection lasts some time changes occur in the skin and hair, which tends to be shed. There is deficient calcification of the teeth in young animals, as well as of the bones. All the above symptoms are produced by removal of the parathyroids alone. It is further found that after such operation the excitability of the peripheral nerves to galvanic stimulation becomes extraordinarily increased.(*) The symptoms resemble those characterising an affection common in infancy—but not confined to the earliest years of life—known as "tetany"; the corresponding syndrome caused by parathyroid removal was accordingly termed *tetania parathyreopriva* or parathyroid tetany. It is not a little remarkable that the removal of these four minute glands—the smallest

independent organs in the body, collectively not weighing more than about 2 grm.—should produce results so serious; and it is little wonder that many surgeons refused to believe in the teachings of physiology regarding them, and continued for a time to include the parathyroids in operations for removal of thyroid tumours—often with disastrous consequences to their patients.

The parathyroids differ from the thyroid, suprarenal and pituitary glands in yielding no active extract which directly affects either the nervous system or peripheral nerves and muscles. It is only on their removal or destruction that nervous symptoms show themselves. Several possible explanations of this have been put forward. One is that these organs yield a chalonic or inhibitory autacoid which restrains the activity of nerve-cells, especially of the motor neurones, so that on the removal of the parathyroids these run, as it were, amuck and produce the symptoms of tetany. Another, that their secretion is necessary for maintaining the calcium balance of the blood, and that in their absence there results a deficiency of calcium salts—a condition known to increase the excitability of nerve and muscle. A third supposition was that the internal secretion of these glands contains an autacoid which antagonises some toxic substance in the blood which affects nerve and muscle, so that after their removal this substance has free play to act, and produces the symptoms of tetany. It was conjectured that such a toxic substance might be found in guanidin. Recent investigations—particularly those carried on by Prof. Noël Paton and his colleagues in the Physiology Department of the University of Glasgow—have shown that this third hypothesis is correct. They have found that guanidin and methyl-guanidin produce, when administered to animals, precisely the same symptoms as those of tetany, and that in cases of tetany—whether spontaneous in the human subject or experimental tetania thyreopriva in animals—there is an excess of guanidin in the blood sufficient to produce the characteristic symptoms of tetany.

The question as to the source of this guanidin is easy to answer, for guanidin is closely related to creatin which is methyl-guanidin acetic acid and is a product of the metabolism of proteins. Probably in minute amounts it fulfils some physiological function, but being highly toxic it cannot be allowed to accumulate, but must be further metabolised. It is this further metabolism for which the parathyroid autacoid appears necessary. How exactly it acts we do not know, but we may conjecture that it may play the part of complement or amboceptor in the sense of Ehrlich, and serve to link the molecule of guanidin with the element in the cells of the body which effects its further transformation. Thus we see that without having any

direct action on the nervous system the parathyroids indirectly play an important part in influencing some of its functions, so that if they are destroyed or affected by disease serious nervous disturbances may ensue. Many more affections of the nervous system than tetany have been ascribed to alterations in the parathyroids, and it has been recommended to employ extracts of these glands in various conditions characterised by increase of response to reflex or cortical excitation. It has also been suggested that chronic increase of their secretion may be the cause of the symptoms in nervous affections in which there is a relative inertness of response to such excitation. But most of these suggestions have little justification, and, as is so often the case, speculation has gone further than the experimental facts warrant.

In conclusion I trust I have been able to show that there is already a great deal known regarding the influence of the internal secretions upon the nervous system, although it is evident that the extent of the unknown is much greater than the known. For in this, as in all branches of science, our knowledge is bounded by an ever-widening circle, and the more this circle is enlarged, the greater the number of points of contact with the vast expanse of the unknown beyond it.

(²) The thyroid is the only organ in the body which normally contains an appreciable amount of iodine.—(³) Murray has lately given the complete life-history of his first case, a woman, at 46, treated continuously and successfully with thyroid until her death at 74 (*Brit. Med. Journ.*, 1920).—(⁴) Gley and Quinquaud state that the effect is not peculiar to extract of thyroid, but is produced by several other glandular extracts, and is less than that of liver extract.—(⁵) It must be stated, however, that Langley and others have failed to obtain this result with the phrenic.—(⁶) Rogoff states that blood from the thyroid veins of dogs collected during massage of the organ and during stimulation of the cervical sympathetic does accelerate the metamorphosis of tadpoles. But the figures he gives of these hardly bear out this statement (*Journ. Pharm. and Exper. Ther.*, 1918, xii).—(⁷) Cannon and de Paz (*Amer. Journ. Physiol.*, 1911, xxviii) have also got an increased extent and rate of contraction from the addition of serum. Such increase is generally followed by a period of rest, which they ascribe to inhibition caused by adrenalin in the blood. But a similar period of rest follows the increased contraction caused by thyroid extract alone, and the period of rest is evidently the physiological rebound from the previous period of over-activity.—(⁸) The nervous symptoms of tetany are quite different from those of hyperthyroidism; in the latter there is no increase of galvanic excitability of the peripheral nerves and muscles such as is characteristic of tetany.

Some Chemical Influences in regard to the Endocrine Glands and the Central Nervous System.⁽¹⁾ By JONATHAN C. MEAKINS, M.D., F.R.C.P.Edin., Christison Professor of Therapeutics, University of Edinburgh.

MR. PRESIDENT, LADIES AND GENTLEMEN,—In view of what has already been said to-day I am afraid that anything which I may

(¹) An address given at the Annual Meeting held in Edinburgh, July 20, 1922.

be able to contribute to this discussion will be superfluous, but perhaps, by approaching the subject from the point of view of the influence of certain chemical substances on the general function of the animal organism, an additional side-light may be obtained on this subject. It is difficult to separate many of these chemical actions, as the functional activity of the endocrine glands and the nervous system are so intimately connected. In addition the active principles of some of the endocrine secretions are now identified as definite chemical compounds closely allied to other substances which may possibly be produced in the organism under pathological conditions.

The general control of the activities of the animal organism, whether those of function or of structure, is of an extremely complex nature; in fact, the more one delves into the subject and more facts are obtained, the more difficult is it to see our way ahead. But there is one point which now seems very clear—that the function of no one organ can be considered as an isolated phenomenon unto itself, but all the intimate and intricate co-ordinations which are so beautifully balanced in health must be considered in this light when we are dealing with disease.

This correlation of function is chiefly brought about either through the nervous system or through substances produced in different parts of the body, which, carried by the blood-stream, make their influence felt in definite specific actions elsewhere. This does not imply that the nervous system acts independently of the chemical substances, which the various functioning structures produce. The two are practically always co-ordinated. It is well known that not only does the secretion of the thyroid gland affect the nervous system, but also that stimulation of certain portions of the nervous system may affect the function of the thyroid gland. Further, it was considered probable that emotional disturbances such as fright might produce an increased secretion of epinephrine. This belief arose from the similarity of the symptoms exhibited under strong emotional circumstances and those which were produced when epinephrine was injected into the blood-stream. Cannon (1) investigated the subject, and his results would appear to confirm this hypothesis, but subsequent work by Stewart and Rogoff leaves the question still in doubt.

The influence of the endocrine glands on the chemistry of the body may be observed not only in normal function and structure, but also in the biological evolution of the individual. Probably in no sphere of the regulation of the organic function of the body is the influence of the endocrine glands so apparent as in regulating the general metabolism of the body. Through all the vicissitudes of rest and work, breaking down and building up of the various

structures of the body, these metabolic processes proceed with great exactitude. It is now quite apparent that the control of these chemical reactions depends in great part upon the influence of the thyroid gland, although the actions of the other ductless glands play an important but probably subsidiary part. When the thyroid function is either increased or decreased, definite disturbances of basal metabolism are apparent. It is interesting to us, from a chemical point of view, to inquire as to what substance or substances in the thyroid internal secretion control and influence this regulation of metabolism. It was at first found that thyroid extract, when administered by mouth in sufficient doses, could bring about all the signs and symptoms of increased physiological function of the thyroid gland, but it was not known whether this was due to one or many chemical or biological substances. Kendall (2), however, isolated in a pure form a chemical substance which he found to be trihydrotriodo-alpha oxyindolepropionic acid. This substance when administered to animals produces all the phenomena which are usually found by administering thyroid extract, even to the action of bringing about a metamorphosis of tadpoles in extremely small amounts.(3) He found that the physiological activity of this substance was due to the imino group (CONH). So it will be clearly seen that the physiological action of the thyroid is apparently due to a definite chemical substance. It has been called by Kendall "thyroxin."

It has been considered that the thyroid function alone influences basal metabolism, but experiments performed by Murray Lyon (not yet published) have demonstrated quite clearly that epinephrine may also bring about a very definite change. He found that by injecting 5—10 m. of epinephrine subcutaneously there was a pronounced increase in the basal metabolic rate. Furthermore, it was indicated that this increase was possibly due to the metabolism of substances which on combustion would give a respiratory quotient approaching unity. In view of the well-known effect of epinephrine in increasing the blood-sugar, it would be suggested that this increased metabolism was in great part due to the increased combustion of carbohydrates. The curve of the increased basal metabolism ran closely parallel to an increase in the respiratory quotient of the expired air.

It has been found that the active principle of the supra-renal gland is also a definite chemical substance, which has been isolated in crystalline form and has been identified as orthodioxyphenylethylolmethylamine. Thus it will be seen that the active principles of two at least of the endocrine glands are isolatable chemical compounds.

These chemical substances are apparently produced by the thyroid and adrenals, and affect the nervous system and the general chemical

economy of the body after a definite manner. But on the other hand, experiments have shown that disturbances of the chemistry of the body in so far as the essential supply of oxygen and removal of carbon dioxide are concerned also profoundly influence the action of certain of the endocrine glands and the central nervous system. The diminution in the supply of oxygen below a certain point has a very definite effect upon the central nervous system, as is very strikingly shown by the effect of the rarefied atmosphere on ascent to high altitudes, either by railway or by other mechanical means such as balloons and aeroplanes. Under such circumstances, the principal symptoms clearly point to a disturbance of the central nervous system, both in so far as the control of the body is concerned, and also in so far as the mental processes are operative. The chief symptoms are headache, vomiting, mental confusion, restlessness, insomnia, and, if carried to an extreme degree, coma and death. It has been found that of all the organs of the body so far investigated the suprarenal gland consumes the most oxygen per gramme of its weight. It will be quite readily appreciated therefore how important it is in the chemistry of the human body, and particularly in regard to the co-ordination of the nervous system and the endocrine glands, that a sufficient supply of oxygen be provided. It has been shown by Kellaway (4) that asphyxia brings about an accelerated secretion of epinephrine, and that this is chiefly due to the lack of oxygen, the excess of carbon dioxide playing at the most a subsidiary part. Numerous other examples might be cited as to how the want of oxygen disturbs the function of the central nervous system and the normal operation of the ductless glands. It matters not whether the deficiency of oxygen be brought about by oxygen unsaturation of the arterial blood, diminished carrying power for oxygen, as in anaemia, or a deficient blood supply, as in endarteritis. On the other hand, the importance of the proper balance of carbon dioxide in the body cannot be ignored. It has been shown by Dale and Evans (5) that the excessive removal of carbon dioxide from the blood brings about a very prompt and dangerous fall in blood-pressure, which may be equally readily restored by the inhalation of air rich in carbon dioxide. They have shown that the effect of forced removal of carbon dioxide from the body is not consequential upon changing the H-ion concentration of the blood, but is due to depression of the vasomotor centres of the bulb and the spinal cord. The physical and chemical characteristics of carbon dioxide make it an ideal regulator of the intra-cellular reaction, and, as it is the condition present within the cell which is of supreme importance, it will be readily realised how important this substance is in the regulation of the respiratory and vasomotor centres.

Furthermore, in man, forced over-ventilation, if kept up for a sufficiently long time, may produce typical attacks of tetany (6) which are indistinguishable from those resulting from deficiency of the parathyroid secretions. The ordinary spasmodic features of this condition are readily produced, and also the evidence of irritability of the peripheral nerves may be demonstrated (7). This may not only be produced artificially in man, but in cases of very severe hyperpnœa resulting from pathological causes typical attacks of tetany may develop (8).

It will be seen, therefore, that the withdrawal of either oxygen or carbon dioxide from the tissues may lead to very serious effects upon both the central nervous system and certain of the ductless glands.

It is well known that the introduction of certain chemical substances may stimulate or depress the functional activity of the endocrine glands, as, for instance, the injection of nicotine has definitely been proven to bring about a great increase in the secretion of epinephrine by the adrenals, and other similar instances might be cited.

But apart from these artificially-introduced chemical bodies, one would naturally inquire as to whether there is any evidence that there are formed in the body under normal or pathological conditions substances which may bring about a disturbance of the control of the central nervous system and of the endocrine glands. During the past two years it has been our endeavour to determine whether there be formed in the human gut during the process of digestion any chemical compounds which might be considered as toxic on the general organism. Such influence might result from either the direct action of bacteria or their endogenous or exogenous toxins *per se*, or else from toxic substances resulting from the action of the bacteria on the contents of the bowel. If these toxic substances are formed by such action on the contents of the bowel, they are most probably derived from the end-products of normal digestion.

Under varying conditions the intestinal bacteria may exert different actions. If the habitat be anaërobic, these bacteria have a more or less common property of splitting off the amino-group from the protein molecule, but if the surroundings be aërobic, the carboxyl group is first separated. It is of great practical importance whether this separation of the carboxyl group takes place after or before deamidization. If after, substances such as indol and phenol are formed, which have little or no toxic properties. On the other hand, if the separation of the carboxyl group takes place before the amino group is split off, very toxic substances such as histamine, tyramine, etc., are formed. When we commenced our study there was no direct proof that such substances were formed in the human gut, or if they were, that they were absorbed by the intestinal tract; but it had been conclusively

proven that they exerted a violently poisonous action if inoculated subcutaneously or intravenously into animals. In considering the various end-products of putrefactive digestion which might under abnormal circumstances exert a toxic action on the organism in general, we selected those resulting from the digestion of protein, and in particular the amines which might result from bacterial decarboxylation of the amino-acids. It was decided therefore to seek for the presence of histamine, not that it was considered *a priori* that this was necessarily a causative agent of intestinal toxæmia under normal conditions, but since if it were found that this and other possibly toxic substances were present normally in the cæcal content, under abnormal conditions of structure and function these might be proved operative as toxic agents.

This proof we proposed to obtain by means of the very sensitive reaction to histamine which is given by the isolated uterus of the virgin guinea-pig. Although this reaction in itself is not a specific test for histamine, we considered that in this case it might be regarded as such, in view of the preliminary chemical treatment to which we subjected our material, so that, although in no cases were we able to obtain enough material for the chemical isolation of histamine, we considered that, in those cases in which we obtained a positive physiological reaction, its presence was established (9). We were able to demonstrate the presence of histamine in six cases in the contents of the cæcum and transverse colon, but not in the faeces. We obtained the largest amount in a case where the activity of the solution by comparison with one of pure histamine corresponded with a concentration of 1 : 10,000 of the latter.

We then engaged upon experiments dealing with the absorption of histamine and its fate in the organism, the results of which I may briefly synopsise as follows :

We found (10) that injection of considerable quantities of histamine into the ileum produced a very prompt effect upon the blood-pressure, and in certain cases also upon the respiration and uterine contraction. This effect was most usually initiated by a sudden shock-like fall in the blood-pressure followed sometimes by a slight recovery, but then continued gradually to decline. This result was practically identical to that found by Dale and his co-workers when they injected sublethal doses of histamine subcutaneously.

Larger amounts of histamine introduced into the colon produced little or no effect. There was thus a definite difference, in the rate of absorption at least, between the colon and the ileum. After an Eck's fistula, whereby the portal blood was side-tracked into the inferior vena cava, a sudden fall of blood-pressure, etc., was observed both in colon and ileum experiments. Perfusion experiments of the

isolated liver did not give any distinct evidence of destruction of histamine. This was in conformity with the findings of other workers.

Considering the large amounts of histamine which it was necessary to inject even into the ileum of the cat to produce any profound influence on the blood-pressure, we do not consider that it is justifiable to draw conclusions from our experiments that histamine, if present in the normal human gut in the concentrations which we were able to demonstrate, would exert any appreciable effect upon the central nervous system and other systems.

Apart from the possible effect which chemical bodies formed in the intestine may have upon the organism as a whole, there is the very important question of food-stuffs and their synthetisation into living tissues. Brailsford Robertson (11) has very wisely drawn attention to the fact that "not only oxygen, water, inorganic salts, carbohydrates, fats and proteins are required for the organism of the body, but with the increasing refinement of our knowledge of the intimate chemical structure of foodstuffs, it has become increasingly apparent that it is not merely sufficient to supply an animal organism with a sufficiency of nitrogen, carbon and calories to replace its daily waste, but it is further necessary to supply an irreducible minimum of specified atomic groupings or complexes of nitrogen, carbon, hydrogen and so forth, "which are not synthesisable by animal tissues. Thus pyrrole, for example, which is an essential building-stone of haemoglobin, would appear to be as much an elementary requirement of animals as nitrogen or carbon itself, as according to Abderhalden they are unable to synthesise it from other carbon or nitrogen complexes in the diet.

"The variety of these essential constituents of the diet with which we are acquainted is already very great, and is unquestionably destined to grow with increasing scope and refinement of investigation. It is highly probable that many of the raw materials from which the various internal secretions are synthesised are dietary constituents of this essential type; for example, the iminazolyl-grouping, which in all probability forms an essential constituent of the active principles of both lobes of the pituitary body, the catechol-grouping, which is an essential complement of the molecule of adrenalin, and the indole radical, which, from the observations of Kendall, would appear to be a component of the active principle of the thyroid, are examples which will serve to illustrate the essential importance of specific molecular groupings or arrangements of atoms, which, if not synthesisable by animal tissues, must necessarily form a part of the diet in order to maintain bodily equilibrium, and to a still greater extent, of course, in order to render normal growth a possibility."

I have endeavoured to-day in a most cursory fashion to lay before

you what seem to me certain very important lines to be followed if we are to elucidate these very complex questions. The whole study of the endocrine glands in recent years has made progress by enormous strides, but one cannot help but be struck by the fact that through it all and over it all many theories have arisen which have but confused the issue. It behoves us in the future to keep our eyes fixed on the direct trail of scientific investigation, and not be drawn aside by the mirage of theory based on insufficient and oftentimes negligible fact.

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The Rôle of the Endocrines in Mental Disorders.⁽¹⁾ By W. H. B. STODDART, M.D., F.R.C.P., Lecturer on Mental Diseases, St. Thomas's Hospital.

THE object of this paper is to raise the question whether the endocrinoses are not secondary to psychical disturbance but primarily caused by it.

In exophthalmic goitre we have the clinical picture of anxiety hysteria plus exophthalmos and goitre. The morbid fears, anxiety, tremors, tachycardia, palpitation, sweating, vomiting, diarrhoea, polyuria, are all anxiety symptoms. In many cases the origin of the disease is consciously traceable to a fright, usually having some sexual significance, and in those cases which have undergone psychoanalytical investigation unconscious psychical factors have been

⁽¹⁾ An address given at the Annual Meeting held in Edinburgh, July 20, 1922.

revealed. I regret that I have never been able to complete the psycho-analysis of a patient suffering from exophthalmic goitre, but even a short analysis has relieved many of the symptoms. Moreover, I observed exophthalmos and a swollen thyroid as an acute symptom in numbers of people during the progress of a German air-raid on London. In other words there is abundant evidence that exophthalmic goitre is of psychical origin. I have had one case of exophthalmic goitre caused, like the true anxiety neurosis, by persistent coitus interruptus. The patient was a male, and the malady was cured by adjustment of his sexual life—without psycho-analysis or any other treatment.

The aetiology of myxoedema, on the other hand, is somewhat obscure. Many cases are known to have suffered previously from exophthalmic goitre. Another factor is that myxoedema is much more common in women than in men (about 10 to 1), and the same peculiarity has been noted of exophthalmic goitre. Lastly, myxoedema occurs later in life than exophthalmic goitre.

We are now capable of recognising minor degrees of both these conditions. We now diagnose hypothyroidism from such a combination as a tendency to plethora, the appearance of a powdery substance in the stockings of the patient, and perhaps mental depression. As to exophthalmic goitre, we have only to keep our eyes open in the streets to see that milder degrees of this affection are extraordinarily common, and I would suggest the possibility that all non-congenital cases of hypothyroidism are a sequel of a pre-existing, though perhaps unrecognised, state of hyperthyroidism. If this be true, then hypothyroidism and hyperthyroidism are both primarily psychogenetic, and the incidence of both conditions would be reduced by treating exophthalmic goitre psycho-analytically. The surgical treatment of this malady reduces the output of thyroidin and thus cures the physical manifestations, but it does not relieve the mental symptoms, apprehensiveness and anxiety, which are really the fundamental cause of the disease.

Another exemplification of the specific action of the mind on the secretion of endocrines occurs in what we call "anxiety" states, for want of a better translation of the German word "Angst," which has a wider and slightly stronger meaning, extending from apprehensiveness to anguish or dread.

As Cannon has shown, all states of fear or dread are accompanied by an increased outflow of adrenalin into the general circulation. The adrenals are stimulated to increased activity *viz.* the autonomic nervous system, and, curiously enough, the overflow of adrenalin thus produced has the effect of over-stimulating the autonomic nervous system; and it is this over-stimulation which is responsible

for many of the physical signs of the anxiety neurosis and anxiety hysteria—raised blood-pressure, tachycardia, palpitation, polyuria, accelerated respiration, air-hunger, asthmatic attacks and disturbances of digestion, for example.

The digestive disorders in anxiety states have especially interested me in recent years, because I have found, sometimes with the aid of skiagrams recording the history of a bismuth meal, that they are with persistent regularity associated with gastric dilatation and visceroptosis.

Now, there are two results of stimulation of the autonomic nervous system which are of importance in this connection. One is the inhibition of peristalsis, the other is closure of the pylorus. The inevitable sequel to this combination is failure of the stomach to empty itself, the retention of food in the stomach with fermentation of the residue and consequent formation of gas and dilatation of the stomach. In the late war this result of fear was so well recognised as to give rise to the latter-day synonym for fear—"wind up." In chronic cases this dilatation may become so extreme that the large curvature descends as low as the true pelvis.

But this is not all. If you will allow me to remind you of certain features of the anatomy of the abdomen, you will remember that the transverse colon is held in position by its attachment to the large curvature of the stomach by the transverse mesocolon. It is true that the splenic flexure is supported by the costo-colic ligament, but there is no such support at the hepatic flexure, and when the stomach dilates and its large curvature descends, the transverse and ascending colon fall, too, the latter dragging the right kidney from its fatty bed, and so providing the clinical picture of visceroptosis with mobile kidney.

This state of affairs is not rare. It occurs to an appreciable degree in every case of morbid anxiety ; but it is liable to escape observation unless the precaution is taken of examining the patients in the standing posture, when the prominence of the lower abdomen, visceroptosis, becomes obvious. You will probably be correct if you suspect this condition whenever the patient complains of pain in the back. Again, in seeking to determine whether the kidney is mobile, do not examine the patient in the recumbent posture ; but get him to stand and lean forward, placing his hands on the couch.

There is an item I would like to mention, although it is a little aside from our present discussion. Sir Arbuthnot Lane regards enteroptosis as responsible for certain kinks in the bowel, which offer obstruction to the passage of the intestinal contents ; but it has been pointed out, on the one hand, that multitudinous normal kinks in a normal bowel offer no such obstruction and, on the other,

that the situation of Lane's kinks is very much the same as that of Sir Arthur Keith's sphincters, and I would like to raise the question whether the obstructions described by Lane are not caused by a contraction of Keith's sphincters through stimulation of the sympathetic by an overdose of adrenalin. We would like the physiologists to tell us whether adrenalin induces closure of Keith's sphincters just as it induces closure of the pylorus.

The discovery of the action of fear, dread or anxiety upon the stomach offers an explanation of the epigastric sensation, common enough in asylum patients, but also well known to normal people. Indeed, it was mainly on account of this phenomenon that the ancients localised the seat of the emotions in the neighbourhood of the epigastrium. The cardiac area was also included, presumably because of the palpitation and tachycardia caused by emotional shocks. I have wondered whether the "sympathetic" received its name for similar reasons. However that may be, we now know that adrenalin plays an important rôle in the production of all these phenomena.

It must be admitted that the foregoing remarks apply mainly to cases of anxiety hysteria—a malady which is not supposed to come within the experience of asylum physicians; but, since Prof. Freud has clarified our knowledge by his conception of anxiety hysteria, we have begun to realise that many of the cases formerly regarded as examples of melancholia are really cases of anxiety hysteria.

We cannot leave the topic of adrenalin in mental disease without some reference to the discovery of Cotton, Corson White and Stevenson that the Abderhalden reaction of the blood of epileptics is always positive to adrenal tissue. Now there is no evidence, and nobody has ever contended, that adrenalin is the cause of convulsions. The hyperadrenalinism is secondary to the disease in some way, and it is possibly due to anxiety and fear of impending attacks. I regret that I have not had sufficient opportunity of examining epileptics since my attention was drawn to their hyperadrenalinism; so that I am unable to state whether gastric dilatation and visceroptosis are common in epilepsy. Here there is an opportunity for team work in the Association.

Cotton, Corson White and Stevenson also made an extensive investigation of the Abderhalden reaction in other mental disorders (220 cases), and the only other constant relationship they discovered was a positive Abderhalden reaction in dementia praecox to the sex glands. This is, of course, to be correlated with Sir Frederick Mott's discoveries respecting the morbid anatomy of these glands in dementia praecox.

His discoveries are capable of several interpretations. So far as

I am aware, nobody has put forward the untenable one that atrophy of the sex glands is the primary cause of dementia *præcox*.

If I understand Sir Frederick Mott's view correctly, it is that in dementia *præcox* degeneration of the sex glands proceeds *pari passu*—parallel with—degeneration of the nervous system, especially of the cerebral cortex, and therefore of the mind. He regards dementia *præcox* as an organic disease of the brain which causes mental degeneration.

There is a great deal to be said in favour of this view, quite apart from the fact that any opinion advanced by Sir Frederick commands profound respect; but there is another alternative, *viz.*, that the organic changes in the brain and sex glands are secondary to the mental disorder. Psycho-analytical investigation of dementia *præcox* appears to demonstrate that dementia *præcox* is primarily and fundamentally a mental disease, *i.e.*, psychogenetic. For example, quite frequently the patients are only children, and the malady is traceable psychologically to the mother's influence on her one darling child, causing him to become auto-erotic and metro-erotic. Such a factor is purely mental, yet the case goes on to a stage in which the characteristic cortical and sex-gland changes presumably occur, and even such degenerative stigmata of the hands and ears as I described in this disease some years ago.

If such organic changes can take place as the result of purely psychical processes, we are naturally led to ask what are the intermediate mechanisms; but, owing to our ignorance, no answer is yet forthcoming. From our knowledge of analogous conditions, however, it appears that we might be justified if we ascribed the changes to excess or defect of some endocrine or endocrines. And here we need go no farther afield in the first instance than Sir Frederick Mott's discoveries. Is it not possible for a sex-gland defect to produce the changes? Such a state of affairs would bring the mechanism of dementia *præcox* into line with that of anxiety states.

The object of my contribution has been to draw attention to the fact that purely psychical mechanisms are capable of modifying the secretion of endocrines, and thus to produce considerable and even gross organic changes.

Notes from a Psycho-therapeutic Clinic.⁽¹⁾ By JAMES ERNEST MIDDLEMISS, M.R.C.S., L.R.C.P.Lond., F.R.F.P. & S.Glas., Medical Officer, Psycho-therapeutic Clinic, Ministry of Pensions, Leeds.

THE intention of the present paper is to give an impressionistic account of the cases seen rather than a detailed and analytical description which is necessarily beyond its scope.

It may be said that until the institution of these clinics by the Ministry of Pensions there has been no field of study quite analogous to them either in the type of clinical material or the conditions in which it is encountered. Their only selective character lies in the fact that ætiologically they are all more or less related to the traumas of warfare, and ostensibly suitable for mental therapy of one sort or another. As, furthermore, their causal relationship to military service is often of the slenderest and their suitability for such treatment is frequently hypothetical, it will be realised that many diverse types of nervous disorder pass muster at the hands of the psycho-therapeutist. Herein lies perhaps its peculiar value. Many cases are submitted to the clinic which a cursory examination shows to be unsuitable either on the score of age, chronicity, or on other grounds. The clinic acts, in fact, as a sort of clearing house for the neuroses and psycho-neuroses of the war, wherein the diagnosis may be confirmed or modified, and from which cases which are unsuitable for out-patient treatment may be variously drafted to mental hospitals, epileptic colonies, and neurological hospitals, according to their kind and degree. As instancing the diversity of types encountered, I might mention that at one time and another I have dealt with cases showing an antecedent history of exhaustion psychosis, acute melancholia, confusional insanity, epilepsy, gunshot wounds of the head, and congenital mental defect, as well as a large miscellaneous group, variously labelled as neurasthenia, shell shock, and war-shock, and which includes the types most usually associated with the strain of warfare.

If it be permissible to speak of a typical or characteristic form of neurosis, pride of place must be accorded to those forms in which anxiety symptoms of one sort or another are the most prominent features of the case. On the objective side these are characterised by segmental or general tremors, unsteadiness of stance and gait, disturbances of speech functions, ranging from complete mutism to mere hesitancy of speech, increase of the deep reflexes, motor inco-

⁽¹⁾ A paper read at the Spring Meeting of the Northern and Midland Division, held at the Derby Borough Mental Hospital, April 27, 1922.

ordination, with marked impairment in the precision of fine movements, hyperidrosis, local or general, vaso-motor instability, as evidenced by patchy erythema of the skin, motor tics and choreiform or athetoid movements of trunk, head, or limbs.

From the subjective aspect a more or less constant feeling of apprehension, which may be general or determined by some particular situation, such as the approach of darkness, closed spaces, the presence of crowds, etc., marked emotional fluctuations with depressed moods in the morning, disturbed sleep with distressing dreams, an intolerance for hurry or bustle, excessive irritability with a tendency to react with explosive violence to trivial annoyances, morning anorexia, nausea and vomiting unassociated with pain and unrelated to the taking of food, feelings of swooning, "falling away," and sudden depletions of energy, are among the most common manifestations. Such, briefly, is the clinical picture presented by a case of anxiety neurosis.

The close relation between the physical signs and affective states is at once apparent and is clearly apprehended by the subject himself, who instinctively avoids the contingencies of every-day life, which he has found by experience to elicit or aggravate his symptoms. When, perforce, these cannot be avoided, and he must submit to, say, the ordeal of medical examination, these characteristics are exhibited in full force, and their painful character is by no means mitigated by the fact that as a rule the patient, as has been said, has complete insight into his condition.

An inquiry into the history of these cases shows in the majority that the symptoms date from a definite incident—usually a shell explosion in the near vicinity. There the uniformity ends, for he may or may not have lost consciousness; he may retain a clear recollection of events right up to the occurrence; he may have a retrograde amnesia for a variable period before it, or the whole or greater part of his war experiences prior to the incident may have been obliterated, with occasional islets of memory standing out above the general oblivion.

In view of the clear-cut histories, it is impossible not to ascribe a certain aetiological value to sheer physical shock. As to the nature and degree of this supposed physical component of the trauma I venture no opinion, as the matter lies somewhat outside my province. That, however, a psychical factor plays an important, some would contend the predominant, rôle will, I think, be generally admitted.

I now propose to give as concisely as may be a description of the treatment I have come to adopt in these cases.

Having made myself familiar with the outline of the case supplied in the official documents, I ask the patient to describe the events

leading up to the illness so far as they are known to him, noting especially the time and the manner of onset and what he himself regards as the origin of his disability, after which he is asked to describe the course of the illness up to date and to give a full account of his present symptoms, explaining particularly how these affect his general efficiency, and in what way, if any, he has been altered in character and temperament. Apart from the information consciously imparted, one is able to gain a preliminary insight into his affective trends and mental orientations where these are at all abnormal or pronounced. This may suggest a useful line of inquiry at later interviews and a valuable clue to the understanding of the case. A complete physical examination is then made, special attention being paid to the nervous system and "objective signs." In many cases the material provided by this preliminary inquiry is sufficient to determine one's course of action. This in my practice takes the form of therapeutical conversations or explanations, in which on his part he is encouraged to unburden himself as freely as possible. An attempt is made to secure at least a relative ease of mind which may serve as a starting-point for future endeavour. The long duration of the symptoms and their (to him) inexplicable fluctuations are presented to him as a normal and usual feature of a nervous malady. In this way his symptoms are divested of a little of their horror and incomprehensibility. He is encouraged to take long views. If he has improved, the fact is emphasised, and he is safeguarded in advance against the disappointment engendered by possible remissions and relapses. In short, the treatment at the outset is largely symptomatic, doubts and misgivings being dealt with as they arise. The personal relationship so set up between physician and patient in itself goes far to mitigate the more acute manifestations, and the feeling of confidence and moral support which ensues is freely expressed by the patient himself, who, perhaps for the first time in his troubled career, feels himself truly understood.

A basis of confidence having been established, one may proceed further. It may be that the patient already relates his symptoms to definite incidents (in his career) as a soldier, and that he has by this time adopted some elementary therapy of his own. Where this connection is borne out by one's own findings, he is by no means discouraged in the attempt to work out his own salvation. Where, however, as is frequently the case, he attributes his condition correctly enough to past incidents, but has consistently tried to obliterate them from his mind—where, in short, there is evidence of repression—he is encouraged to face the facts and to revive little by little the memory of the incidents which have left such an abiding sense of horror in his mind. And here, in my opinion, it is not advisable

to force the pace, for the emotional reaction is severe and the rate of progress must be conditioned by the individual's capacity to endure it. So far it has been assumed that these experiences, though not readily faced, have never been entirely shut out of consciousness—that, in short, the attempt at suppression has only been partially successful. It must be admitted that in a large proportion of cases this represents the actual situation. In the amnesic cases, where the traumatic episode and possibly whole periods of war experiences have been expunged from the consciousness, recourse must be had to other expedients. The dreams, if remembered, may be taken as a convenient starting-point for the resuscitation of the submerged experiences. By a process of free association it may be possible to recall a fragment of the past, around which as a nucleus other forgotten incidents gradually crystallise out. When no dreams are available I have been accustomed to induce a hypnoid state, in which apparently the power of recall is heightened. In one such case an isolated incident was all that was remembered. In the hypnoid state the man was asked to visualise this as clearly as possible. In doing this additional elements appeared in the picture. At subsequent interviews the process was repeated, the picture being gradually enlarged from day to day by a process of accretion as each new feature was added to the main body of experiences. In this case I was impressed by the vividness with which the memories appeared in consciousness and by their authenticity—for the patient had no doubts as to the reality of the experiences. A dominant feature in this case was a stammer, and associated with the revival of the memories there seemed to be an unmistakable improvement in the stammer. In this connection I may say I have been frequently impressed by the extraordinary vividness with which war incidents are revived in the hypnoid state in cases where they have never disappeared entirely from consciousness. In the waking state the subject, as it were, knows that such and such a thing has occurred, whereas in the hypnoid state it is as if it actually occurred before his eyes. The only condition which is at all comparable in the intensity and vividness of sensation is the war dream, in which, as is well known, the subject frequently dramatises the whole episode with all its appropriate motor accompaniments of fear, flight, or defence. It is as if in both cases direct access is obtained to the subconscious—in one case by design, and in the other during the natural process of sleep.

Whilst convinced of the general efficacy of this procedure, *viz.*, the restoration and reintegration in consciousness of forgotten or repressed experiences, I am unable to record any of the startling and dramatic results so frequently described in psycho-analytical literature. If, as is natural to suppose, the tendency to suppression and dissociation

tion is related to the degree to which the suppressed material is unacceptable to the waking consciousness, one would hardly expect such sudden changes. Seeing that in many cases the incidents have never been forgotten, the real difficulty would appear to be in rendering them assimilable by the consciousness. It is in the *rapprochement* between the ego and the system of ideas against which it instinctively defends itself that the essential problem lies. The mechanisms involved in this process are probably not essentially different from those which underly the adjustments of every-day experience. The process whereby an idea or situation, at first repellent, is by repeated presentation to the consciousness so divested of its horror as to become acceptable, or at least tolerable, is too familiar to need emphasising. The tolerance so acquired, however, implies more than the mere juxtaposition in consciousness of two systems of ideas which are mutually incompatible, however many times repeated. Without distortion of the facts the situation must be presented from a new angle, and the redeeming features, if such there be, so stressed as to appeal to some strong and prevailing trend of the personality. By some such transfiguring agency only must it have been possible for many refined and sensitive souls to endure the unspeakable horrors of modern warfare. It may happen, of course, that the experiences which it is sought to suppress may be so inherently revolting as to outrage every decent feeling and instinct. In such cases no species of ingenuity can secure its acceptance by the consciousness. Rivers, in his book, *Instinct and the Unconscious*, records the case of an officer caught in a bombardment, and who, on recovering consciousness, found himself lying face downwards on the body of a dead German, from which the decomposing intestines protruded and partly filled his, the officer's, mouth. It can be believed that no kind of mental alchemy was capable of rendering a memory of this kind anything but hideous. The types of cases already discussed may be usefully contrasted with those in which the manifestations are somatic, rather than psychic, in character—the so-called conversion—or, as Rivers calls them, substitution-hysterias. In one or two such cases one has been impressed by the absence of mental stress or emotional excitement such as are associated with the anxiety state. It is as if the patient quietly acquiesced in his disability, and assumed that it called for no particular explanation except the one assigned—possibly some trifling wound long since healed. It is true that if the reality of his symptoms be questioned in any way, he backs up his assertions with a good deal of warmth which has every appearance of sincerity. In general he is as little open to argument as the delusional melancholic who imagines he has no inside. If it be true, as Rivers contends, that all these neuroses

represent reactions of one sort or another to the danger instinct, there is a great deal to support his thesis that in the substitution hysterias the solution is attempted on a lower evolutionary mental level than in the case of the anxiety syndrome. Thus may be explained the completeness of the defensive mechanism and the comparative integrity of the mental processes. Be this as it may, a teleological significance must be attached to these somatic manifestations which at one period or another have subserved some ulterior need on the part of the ego. That the comparatively primitive mechanism just described is not the only one involved is suggested by the following case from civilian practice. The patient, a middle-aged married woman, wife of a collier in a small village, had for several years suffered from a functional paralysis involving both legs and one arm. When first seen she was quite unable to stand, was bed-ridden, could not dress her hair, and had to be taken about in a bath chair. She was said to have suffered from rheumatism and various internal disorders, but except for some bronchitis had, when I saw her, no objective signs of disease. By direct suggestion and massage she completely recovered the use of the paralysed arm; but an attempt at hypnosis, with a view to the recovery of the leg functions, precipitated a typical hysterical attack, and the treatment had to be suspended. It transpired that she was an intelligent woman who had formerly been in business for herself. She admitted that she had married beneath her social status—her husband was a collier and intellectually much her inferior—and it was inferred that in marrying she had had to abandon many of her social ambitions. As a collier's wife she was destined to a prosaic and comparatively drab existence. As an interesting invalid, on the other hand, wheeled through the streets in a bath chair and an object of unusual consideration and esteem, she achieved a more or less perfect compensation for the fuller life she had so unwillingly relinquished. The purposive significance of her disability and its relation to her egoistic needs would probably have been repudiated by the patient. That it existed I have little doubt, though no doubt the transference was facilitated by suggestion, which, as in the war hysterias, is so frequently a contributory factor.

In submitting these experiences I am conscious of having long ago exceeded my modest intention. It is of the essence of notes that they should be brief; that they should have extended to such an inordinate length I had never anticipated. Perhaps it is one more instance of subconscious motivation, wherein I hope I may be exonerated.

The Out-patient Treatment of Early Mental Disorder. The Neurological Clinic, and some of its Functions.⁽¹⁾ By A. NINIAN BRUCE, D.Sc., M.D., F.R.C.P.Edin., Director, Neurological Clinic, etc., Ministry of Pensions, Edinburgh.

AMONG the many important advances which have taken place within recent years in the science of medicine, none have surpassed in value or in extent those affecting the nervous system. One of the principal points which these have established, no matter from what direction the subject has been approached, is the recognition of the essential unity of the sciences of neurology and psychiatry. In the domain of psychological medicine, the researches of Freud and Jung on psychopathology and their theories of the subconscious and its manifestations have provided a common meeting-ground; the investigations of Campbell on the cell lamination of the cerebral cortex, and later of Shaw Bolton, have aimed at the elaboration of a scheme of cerebral function based on clinico-histo-pathological proof; the studies of Elliot Smith on the comparative anatomy of the brain and the development of the cerebral cortex peculiar to the mammalia have demonstrated some of the factors which have contributed to the attainment of man's distinctive mental aptitudes, and eventually made possible the emergence of the human intellectual abilities culminating in the development of speech, and the attainment of intellectual pre-eminence within the human family; equally important is the recognition of the integrative action of the nervous system by Sherrington, and his views on the importance of the simple muscle-nerve preparation in explaining the processes involved in cerebral association and the significance of excitation, inhibition and the latent period; and still more recently we have the investigations and publications of Schafer on the influence of the endocrine glands on the nervous system, and of Mott on the relationship of the reproductive and endocrine glands to mental disease, and the light which this has shown on the aetiology of dementia praecox.

These researches, and many others too numerous to mention here, have all consistently furnished proof from their separate standpoints of this essential unity. And it is very important this should be realised. The separation of neurology and psychiatry has done much to hinder the development of both: it has resulted in the development of nervous and mental disorders as independent studies, the neurologist rarely having any extensive asylum experience, and, on the other hand, the alienist rarely has a corresponding knowledge of organic neurology. It is now being recognised that a neurological examination is not really complete unless the mental state of the

⁽¹⁾ A paper read at the Annual Meeting held in Edinburgh, July 19, 1922.

patient is also examined, and *vice versa*, and that a specialist in nervous disorders must possess not only a knowledge of organic neurology and of psychiatry, but also of psychology, both normal and abnormal. It is interesting in this respect to note that two such eminent specialists in these two subjects in New York as S. E. Jelliffe and Wm. A. White have termed the second edition of their text-book on the *Modern Treatment of Nervous and Mental Diseases*, the first edition of which appeared in 1913, *Diseases of the Nervous System: a Text-book of Neurology and Psychiatry*, because to have published it in two books, one on neurology and one on psychiatry, "would perpetuate a distinction which the authors believe to be wholly artificial."

The separation of the study of nervous disorders from the study of mental disorders dates back to old controversies. The connection of mind and body was the corner-stone of Aristotle's construction; he considered that intellect presupposes sense: as he found mind and body invariably connected, he therefore regarded them as essentially inseparable. It is important to note that Aristotle began his study of mind from the side of body. Descartes, however, could conceive mind without body, and body without mind; therefore he concluded they were actually independent and could exist apart. While the Aristotelian theory developed in mediæval times into a somewhat hazy materialism, the theory of Descartes led on to a separation of the diseases of mind and body. These two problems, the relation of mind and body, and the reality of external perception, have continued to vex philosophic thinkers from Descartes' time to our own, nor will they cease from troubling us until dualism is finally laid to rest.

For practical purposes the nervous system may be divided into three levels of activity—the *vegetative*, the *sensori-motor*, and the *psychic*. The first of these, the vegetative nervous system, is in close functional relations with the endocrine glands—in fact, some of these glands are actually part of the nervous system. The type of tool employed at this physico-chemical level is the *hormone*, and the symptomatology of this region constitutes the borderline of neurology and internal medicine.

The second level is the sensori-motor; the type of tool here used is the reflex, and the function is further integration by providing the means for the balanced interrelations of the various motor organs of the body. It has to provide that all the various parts of the machine work harmoniously together, that the functions of the various organs are not only properly timed in relation one to the others, but also are adequately related on the basis of the functional demands made on them. It is to the symptomatology of this group that the term "neurology" is usually applied.

The third, the highest, the psychic level, is the most complex. The tool here employed is the *symbol*, and the symbol becomes a carrier of energy which is translated into conduct. The function of this level is no longer one of simply integration of the various parts of the individual, but has also to do, not only with the relation of the individual as a whole to his environment, but more especially to his social environment.

The hormone and the reflex are confined in their capacities for reaction within relatively narrow limits of possibilities. The symbol, on the other hand, is capable of infinite change and adjustment, and so has grown out of the necessity created by ever-increasing demands. The growth from the lowest to the highest, from the youngest to the oldest, from the simplest to the most complex, has been, as everywhere in nature, without gaps. We must now regard the mind as the end-result in an orderly series of progressions in which the body has used successively more complex tools to deal with the problems of integration and adjustment.

With these short introductory remarks on the oneness of neurology and psychiatry, and on the different levels of nervous activity, we pass to the more particular subject of this paper, namely, the treatment of disorders of the higher levels of cerebral functioning at the out-patient clinic. The disturbances which present themselves for special consideration here are essentially those included in the terms "functional nervous disease" and "incipient mental disease." These two types merge into one another so gradually and so completely that it is not possible to draw a line sharply where the one ends and the other begins. They constitute clinically the connecting link between neurology and psychiatry, and are only now beginning to receive the attention they deserve. The war has brought them specially into prominence on account of the great increase in number of types and variety which it has produced, and the necessity for immediate and appropriate treatment. The treatment organised during the war by the War Office consisted of in-patient treatment only, and proved most successful, but after the war, when the whole question of treatment came up before the Ministry of Pensions for consideration, it was decided to establish out-patient clinics as well as special hospitals. These clinics have now been functioning for about two and a half years, and much useful information about the types of cases presenting themselves for treatment and the results of treatment have been obtained. The urgent present-day need for the establishment of such clinics in connection with our general hospitals for civilian cases renders the results which have been obtained from Ministry of Pensions clinics of much value, and the fact that the types of cases resulting from the war present a simpler problem

than those of the corresponding civilian cases in no way detracts from the value of the results.

The Neurological Clinic, which was established in Edinburgh in the beginning of 1920 by the Ministry of Pensions, has been responsible for the supervision and treatment of approximately 2,000 cases. In order that a pensioner may become entitled to such treatment it is necessary that certain procedure be adopted. This consists in his examination previous to appearing at the clinic by a medical board or a medical referee, who certify that he is suffering from a disability requiring such treatment, and that such disability is the result, or has been aggravated by, his service during the war. In the great majority of cases a diagnosis is made of "neurasthenia," and he is then transferred to the clinic for full investigation of his case and for whatever treatment is required. It will, of course, be obvious that practically every type of nervous and mental disorder may come before such a clinic, and that the first requirement is an accurate diagnosis. It was found that these cases may be roughly grouped under the following headings:

First. Cases in which the "neurasthenic" symptom is merely part of some general disease, such as phthisis, diabetes, cardiac dilatation, pernicious anaemia, or some such type of condition. Such cases are immediately transferred to the wards of a general hospital for treatment. They incidentally illustrate the fact that the first requirement for treating "neurasthenia" is a knowledge of general medicine. In view of the importance of accurately diagnosing all cases, as far as is possible, at the first interview, the association of such a clinic with a general hospital is important, as the patient may be examined without delay or difficulty at any of the other specialist departments should that be considered necessary or desirable.

Second. The second group of cases include those of the endocrinopathies, of which exophthalmic goitre and thyroid disturbances were the most important. This was not a large group.

Third. The third group is that of the organic nervous diseases. It includes all the well-known diseases—tabes, disseminated sclerosis, paralysis agitans, peripheral neuritis of different kinds, muscular atrophies, subacute combined sclerosis of the cord, and syphilitic lesions. Gunshot wounds of the head were fairly numerous. When it is realised how closely many of these diseases simulate "functional" states, it will at once be obvious how essential an intimate knowledge of organic neurology is in the examination of such cases. It must not be forgotten that in many of the cases in which the larger number of the symptoms were of a purely "functional" nature an organic element was also present.

Fourth. The epileptic group. These were divided into the

traumatic and the idiopathic types. The former was associated with gunshot and other wounds to the head. The proportion of such cases when compared with the number of cases of wounds to the head was small. The fits were frequently of the Jacksonian type, and the element of alcohol had to be usually carefully considered. The other cases—and only true epilepsy is included in this group—were in most cases when fully examined found to have a pre-war history of fits. They presented great difficulties; they were mostly able to get work, but none were able to keep it. They soon became known among employers as epileptics and their chances of employment became *nil*. The number of fits did not make much difference—the mere knowledge that they took fits was enough. A large proportion were capable of good work under suitable conditions, and were indeed most anxious to obtain it. There does not seem to be much doubt that an extension of the epileptic colony system is an urgent necessity.

Fifth. The mental defective group. The number of mental defectives who appeared for treatment was considerable. As a group they do not appear to have suffered much from the effects of the War. Their inability to adapt themselves saved them. They were early sent home, or developed a state of mental confusion which necessitated their immediate removal to a mental ward. When transferred to this country they soon recovered. But the question of their employment then arose in an acute form. Many of them were found to be quite fit for good work, if under supervision. Suitable institutional treatment is what is required. The moment of their discharge from military hospitals presented a unique moment for their recognition and segregation, but such was unfortunately not possible, and the opportunity was lost. According to Goddard, feeble-mindedness is hereditary in a large percentage of cases, and is transmitted in accordance with the Mendelian formula. The problem which they present is of great importance to the community. The recognition and determination of the different grades of mental defect requires special study and training, and it would appear that such would come under the supervision of out-patient clinics.

Sixth. The criminal degenerate. Our attention was specially drawn to this group by the repeated requests we received from lawyers for information of cases who had come into the hands of the police. Many were well-known characters, repeated punishments having had no effect whatsoever. No attention appeared to have been paid to their mentality. They illustrated the great help which such a clinic could give in such cases when working in co-operation with the Law Courts. It is astonishing how little there is in the literature of criminology which is directly helpful to those who have to deal

practically with offenders. Of general theory there is no lack, but when we come to the study of individuals there is almost no guidance. In view of the failure of the past and of the present to handle effectively anti-social conduct, and in the light of the enormous expense of criminality, standing in striking contrast to recent progress in many other fields of human endeavour, there seems the utmost justification for further work in the underlying causes of delinquency. The remarkable results which have been attained by Dr. Healy at the Juvenile Psychopathic Institute organised in Chicago in March, 1909, and later attached to the Chicago Law Courts, illustrates well the importance of this matter.

Before passing from this group, attention might perhaps be directed to a recent publication by Dr. Briggs, of Boston, entitled *The Manner of Man that Kills*, in which the importance of this subject is demonstrated. A most careful study of the life-history of three prominent American murderers is given, one of whom, Czolgosz, was responsible for the murder of President McKinley. As a result it is shown that the first was a defective, the second a case of dementia praecox, and the third was a victim of hysteria with delusions and hallucinations. Dr. Briggs emphasises the point that while Society is willing to condemn and punish the defective or lunatic after he has committed a crime, it does not do anything to save him from leading a life that results in disaster, often in homicide; and not only so, but is liable to bring down with him in his tragedy innocent persons. Further work on this subject will be found in the volume on the *Criminal Imbecile: an Analysis of Three Remarkable Murder Cases*, by H. H. Goddard, published in 1915.

Seventh. Cases found to be certifiable on the first examination. These include various delusional states, acute hallucinatory conditions, chronic alcoholic types and dementia praecox. Nothing has astonished me more than the failure of the general practitioner to recognise and realise such states. And this failure is not limited to the general practitioner. Cases found to be certifiable were not certified by us, but recommended to the parish authorities through the local pension committee for this purpose. Nevertheless we repeatedly found that cases potentially suicidal or homicidal, and reported to be so, were not certified. The tendency always was to wait until the tragedy happened, and then to rush the case into an asylum on an emergency certificate. This is obviously one of the principal explanations of the epidemic of tragedies which are being so repeatedly reported in the newspapers from day to day. Unless these cases are considered certifiable as insane, they are practically unable to receive any treatment. Had there been a series of out-patient clinics attached to large general hospitals in different parts of the country to which

such cases could have been referred for examination and treatment, and where they would immediately have come under trained mental supervision, they would have been realised at once as potentially dangerous either to themselves or others, and transferred to the mental hospital before the tragedy, and not after. Clearly such clinics would render valuable service to the general practitioner. Few cases present more difficult problems to the general practitioner than the incipient mental case. He has not the time, even if he has the training, to give them the care and attention they require. It would be of immense help to him if there were some out-patient clinic available to which he could refer all such cases, in exactly the same way as surgical and other cases are referred to the corresponding surgical or appropriate clinic. An important function of an out-patient clinic of this nature is to recognise and remove to the mental hospital certifiable cases which have so far escaped recognition, and hence the necessity for men trained in mental work (and this can only be learned in an asylum) on the staff of such clinics, and a new line of advance for those who have decided to specialise in mental work is presented.

Eighth. The eighth group is the largest, and includes all those cases which are usually included under the terms "functional nervous" and "incipient mental" disorders. These two conditions merge into one another so gradually that no sharp dividing line can be found at which a separation might be drawn. Many cases considered to be neurasthenic are in reality mild mental derangements—a fact which does not appear to be yet fully realised. It is difficult to exaggerate the sense of illumination which is experienced in the study of "neurasthenia" after a period of residence in a mental hospital (the only way in which mental states may be adequately studied), while residence in a neurological hospital with neurasthenic and functional nervous cases gives an insight into nervous conditions which can be learned in no other way.

I have not time in the present short address to discuss at any length the different types of cases which came under the present group. But several points stand out and are worthy of attention. The type of case to which the term "conversion hysteria" has been given presented no difficulty in treatment, provided the case was sent to us first. Unfortunately many before coming to us had undergone long courses of treatment in or out of hospital, where the disability had been regarded as of an organic nature with resultant fixation of symptoms. It made it clear to us how much good could result from the establishment of neurological out-patient clinics in connection with general hospitals, to which surgical and orthopaedic clinics could immediately transfer all cases of paralysis

and other loss of functions for which no definite causative organic lesion can be discovered. At present there is practically no treatment for such civilian cases unless they are so unfortunate as to be treated as if of organic origin.

The greater proportion of the remaining cases which came under observation were emotional disturbances characterised by anxiety. At the very onset it was discovered that many patients showed clinical pictures which would not fit into existing diagnostic pigeon-holes. The manic-depressive group was to be recognised, but the rigidity of this term, which is descriptive, has confused the problem of classifying many benign psychoses. Although elation and depression are the commonest mood anomalies in this group, they have no more theoretic importance than anxiety, distressed perplexity, or apathy. The term "anxiety-apathy" insanity is just as distinct a group and as appropriate a term as Kraepelin's manic-depressive states. The symptom-complex centering round apathy is just as distinct as that which is centred round mania with its predominant characteristic of elation.

Regarded from the point of view of adaptation and regression, an attempt was made to discover what was the unfavourable attitude of reality up against which the patient found himself placed. A large proportion of the cases were best understood as merely cases of psychological regression. Regression is a term used, especially by Jung, to describe a mode of reaction to the environment implying backward movement in time. It is the psychological opposite to that forward movement of life which is essential to the proper growth of individuality. There is a constant movement forward or backward of the psychic stream in accordance with the aspect that reality wears. If reality is favourable the stream flows forward; if reality is unfavourable, the stream flows backwards. Immediately the stream begins to flow backwards intra-psychic tension occurs, due to the accumulation of dammed-back psychic energy. It is this accumulation which later on makes possible a new effort to overcome the obstacles in reality. This, of course, is normal. If, however, this accumulation is unable to overcome the obstruction in reality, it finds escape along other channels, and a neurosis results. The return to civilian life after a period of stress serving in the Army or Navy during the war was associated with conditions tending to render adaptation difficult, and consequently regressive symptoms appeared in a very large number of cases. This was undoubtedly aggravated by the need of rest following the mental tension and fatigue of the war. It was usually possible to discover the difficulties which each case presented without much of an analysis, and it was surprising how little often was the assistance necessary to enable him to regain his normal

mental equilibrium. It was found that many such cases who had been sent to hospital were discharged worse than when admitted. This is to be expected, as the effect of admission to a hospital is in no way a help to solve the problem of an unfavourable environment—an environment to which he must return on leaving hospital, the difficulties being magnified by his absence, and in no way solved before his discharge. Such cases are essentially cases for out-patient treatment; they illustrate the fact that in a very large number of neurasthenic cases the problem lies in the present.

To give an example of such a case, a pensioner was referred to the Clinic for "nervousness and stammer." The stammer was his most serious disability; on the least excitement he not only developed such a marked stammer as to make anything he said practically unintelligible, but usually could scarcely even produce a sound except of a painful nature, while his expression was most distressing to watch. It was found that his profession was that of an auctioneer. He had been treated in hospital without benefit. He had been repeatedly told that he would not be fit to return to such work again, and that he should try and discover some other kind of work in the country—a thing he was most unwilling to do. It was also discovered that his previous employer was willing to re-engage him as soon as he was fit. It was thought that the whole symptom was of a regressive character, and his employer was informed that if he were given a start again as he was, it was extremely likely that he would settle down to the work quickly, and that this in itself was the best treatment he could receive for his condition. Fortunately his employer was willing to have him on these conditions. He returned a few days after commencing work, and it was practically impossible to detect that any such disability could have originally been present. He stated he had been taken back at a good wage with the certainty of permanent work and promotion, and that his stammer had vanished during the following night. It was observed that it returned at his next medical board, but passed away again as soon as the board was over. This was the only time it had returned since he commenced his work.

Cases which failed to adapt themselves even when reality was eminently favourable, either completely or partially, were first treated as out-patients. A mental exploration of a mild nature was undertaken, and it was usually not difficult to discover that a repression or dissociation was the responsible cause. This was then worked out. As a general rule it was found that if the man had good and quiet home surroundings, and his case was not complicated by domestic difficulties, he did well on out-patient treatment. If, however, the home conditions were bad or unsatisfactory, he did best in hospital.

The other condition which was considered often to be most suitably dealt with in hospital was when the distance at which the man lived from the Clinic was such as to make constant attendance difficult. It was repeatedly found that in-patients after discharge from hospital required a further period of out-patient treatment before they could be considered fit to be finally discharged.

It was found that an elaborate analysis was only required in a comparatively small number of cases.

The group consisting of the psychoses was not large. Such cases were mostly sent to one of the Ministry hospitals for borderline mental cases. The value of these hospitals is great, as they fulfil a definite need.

The reason for the present plea for the permanent establishment of out-patient neurological or psychiatric clinics for the treatment of functional nervous disorders and incipient mental troubles is based, not only on the urgent need of such cases for treatment, but also on the fact that temporary clinics of this nature established by the Ministry of Pensions for the treatment of such cases resulting from service during the war have proved beyond any possibility of dispute that such early supervision and treatment is successful. The time for the permanent establishment of such clinics is overdue. The idea itself dates back for many years. In 1849 the fourth report of the Visiting Committee of Hanwell Asylum drew attention to this problem. Sir Frederick Mott, in 1903, emphasised the importance of treatment for early and acute cases not yet certifiable. Prof. Elliot Smith, whose attention was directed to this subject from a study of "shell-shock" cases in a war hospital, has emphasised the problem still more strongly. The establishment of the Maudsley Hospital is a gratifying step in progress. But the time has now come for a full recognition of the real importance of the subject, and the necessity for action on an extensive scale.

The following brief summary states some of the principal arguments dealing with such out-patient clinics.

SUMMARY.

1. In all other branches of medicine facilities for dealing with disease in its initial stages are recognised as indispensable. In the case of borderline mental cases this has yet to come.

2. The study of mental disorder requires a long apprenticeship, and the treatment of incipient cases is often a long and complicated process, for which the average general practitioner has seldom either the time or the special training necessary.

3. It will permit of the recognition of dangerous and certifiable mental states at an earlier date than often occurs at present, and

thus result in their removal to a mental hospital before, instead of after the tragedy.

4. It will allow the general practitioner to obtain an expert opinion on all doubtful cases, and supply the early mental case with appropriate treatment at the beginning of the illness, thus tending to cut short the duration of the attack, and often prevent the necessity for certification and removal to a mental hospital ; or, if this be ultimately necessary, shorten the duration of his time in hospital.

5. It will help to relieve the overcrowding of asylums, and thus leave more time for the individual treatment of those who remain.

6. It will assist, when necessary, in the after-care of the discharged patient.

7. It will allow of the examination and segregation of mental defectives in institutions.

8. It will allow of the examination of epileptics with a view to removal to epileptic colonies.

9. It will form a useful adjunct to the treatment of offenders in the Law Courts.

10. It will serve as a teaching centre.

11. It will serve as a centre for investigation and research.

12. It will allow surgical and other out-patient clinics to refer cases for examination whenever it is thought that nervous or mental factors are also present in the case.

13. The clinic must work in close co-operation with the mental hospital, the mental defective institute, the epileptic colony, and the general hospital. The staff must be specialised in organic neurology, psychology, normal and abnormal, and psychiatry. Uncertified wards for the treatment of early cases requiring in-patient treatment, and for acute cases of short duration, should be attached to the clinic. A social service organisation to assist in the investigation of cases and their after-care should be also attached.

An out-patient clinic, organised on these lines, will bring the mental hospital into touch with the general public through the medium of the general hospital. It will help to expedite the removal of the vague fear of illegal detention, which has not yet passed away, and it will also help to remove the " stigma " which is still supposed by many to be attached to the legal certification of the person of unsound mind.

Clinical Notes and Cases.

The Colloidal Gamboge Reaction.⁽¹⁾ By D. O. RIDDEL, D.S.O., M.B., Ch.B.Aberd., and R. M. STEWART, M.D., M.R.C.P.Edin., D.P.M., Assistant Medical Officers, County Asylum, Whittingham.

THE subject of biochemistry is so closely related to physiology that any advances in the former science are bound to have important applications to the practice of medicine.

We find, accordingly, that the modern development of the chemistry of colloids was soon followed by the introduction of a colloidal gold reaction for the examination of cerebro-spinal fluid. This test, with which the name of Lange will always be associated, has proved to be of great diagnostic value, especially in neurosyphilis, and is now regarded as one of the most important laboratory procedures in the examination of the cerebro-spinal fluid. A satisfactory reagent, however, is extremely difficult to prepare, and any gold sol which deviates from the standard requirements laid down by Miller and his associates leads to erroneous and conflicting results. On account of this difficulty attempts have been made to employ other colloids which would be simpler to prepare, and with this object in view gum mastic, gum benzoin and Berlin blue have been introduced.

The gum mastic test, devised by Emanuel and modified by Cutting, is simple to perform, but has been found to give unreliable results.

The colloidal benzoin test, which is still in its infancy, has proved to possess a sphere of utility which deserves a wider recognition than it at present enjoys. We have recently used this reaction, together with those of Lange and Emanuel, on the spinal fluids of a fairly large series of cases, and as an outcome of our experience we propose to describe to-day a still simpler and, we believe, equally reliable test, which may be called the colloidal gamboge reaction.

The mechanism of colloidal tests has been adequately dealt with by Cruickshank, Brunton and others, and we do not think it necessary to refer to this subject here, nor shall we attempt to detail our reasons for substituting for benzoin a suspension of gamboge. We propose, rather, to detail as briefly as possible the results which we have obtained from the application of our test to 256 spinal fluids.

In performing the gamboge test it is essential to use pure reagents, distilled water free from acid or all trace of salts, and chemically clean glass ware. Further, the colloidal gamboge must be freshly prepared.

⁽¹⁾ A paper read at the Spring Meeting of the Northern and Midland Division, held at the Derby Borough Mental Hospital, April 27, 1922.

The method of performing the test is as follows :

Stock solution.—One gramme of commercial gamboge resin is powdered and dissolved in 10 c.c. of absolute alcohol. After the lapse of forty-eight hours the supernatant fluid is decanted, and stored in the dark.

Gamboge emulsion.—When the test is to be performed 0·3 c.c. of the stock solution is added drop by drop to 20 c.c. of twice, or better, triply distilled water, the flask being agitated in order to obtain a homogeneous emulsion.

Electrolyte.—This is obtained by preparing a 0·4 per cent. solution of chemically pure sodium chloride.

Performance of the test.—Six small test-tubes (3 in. x $\frac{1}{2}$ in.) are set up in a rack; in the first tube there is placed 1·8 c.c. of the saline solution, and in each of the remaining tubes 1 c.c. 0·2 c.c. of cerebro-spinal fluid is next added to the first tube (bringing the volume in this tube up to 2 c.c.), and after mixing 1 c.c. is transferred to the second tube, the procedure being repeated for tubes 3, 4 and 5. The c.c. removed from the fifth tube is rejected, the sixth tube thus serving as a control. In this manner a series of five dilutions is obtained, ranging from 1 in 10 to 1 in 160. Finally to each of the six tubes 1 c.c. of the gamboge emulsion is added. The test may be read after allowing the tubes to stand at room temperature for 12 to 24 hours.

In a negative reaction the contents of each tube remain unaltered, showing no trace of turbidity. In positive cases complete precipitation of the gamboge occurs in a given number of tubes; the fluid becomes clear and the gamboge is deposited at the bottom of the tubes.

A negative reaction is shown by a total absence of precipitation in all six tubes, and a curve indicating general paralysis, the so-called paretic curve, is shown by complete precipitation in the first three or more tubes. In all of our cases of general paralysis, 56 in number, a paretic curve was obtained. The clinical diagnosis was confirmed *post-mortem* in 16 instances.

Some of the cases were in the earliest stage of this disease, and presented very few clinical signs of general paralysis, but their subsequent course fully justified the reliance which we attached to positive reactions.

It is also interesting to note that in this series two patients belonged to the senile type, their ages being 64 and 68 respectively. It has only lately been recognised that general paralysis may be encountered in patients even 80 years of age, and in doubtful cases of this type—and usually in senility, there is considerable doubt—examination of the cerebro-spinal fluid is of great value.

Two cases of tabes dorsalis gave similar paretic curves, but with these exceptions we never obtained a paretic curve in fluids from other diseases. It is, of course, essential to employ only fluids which are free from all trace of blood or organismal contamination, as such may cause complete precipitation in an irregular manner.

With regard to cerebro-spinal syphilis, we can speak with less confidence, as our series only comprises 11 cases, but from an analysis of these it appears that partial precipitation in the first three tubes may be taken as an indication of meningo-vascular syphilis of the nervous system.

In meningitis complete precipitation occurs in the higher dilutions, tubes 1 and 2 usually remaining negative.

In a miscellaneous group of 183 cases the colloidal gamboge reaction was uniformly negative, and this in spite of the frequent presence of increased globulin and cell content.

In conclusion, we would like to emphasise the value of a routine examination of the spinal fluids of all new admissions. Changes in the cerebro-spinal fluid are among the earliest findings in syphilitic disease of the central nervous system, and their detection affords a basis for treatment which, if promptly applied, may transform a seemingly incurable patient into a useful member of society.

Recent Medico-Legal Cases.

[The Editors request that members will oblige by sending full newspaper reports of all cases of interest as published by the local press at the time of the assizes.]

REPORTED BY DR. M. HAMBLIN SMITH.

GAUL v. EARL SPENCER AND OTHERS.

This case, tried before Mr. Justice Darling and a jury on June 22nd and following days, was a civil action for damages for false imprisonment and breach of contract. The case was brought by Miss Lilian J. Gaul against Dr. D. F. Rambaut, Medical Superintendent of St. Andrew's Mental Hospital, Northampton, and the Managing Committee of that institution.

The plaintiff conducted her own case. She entered the hospital as a voluntary boarder on April 26th, 1917. On May 8th a reception order under the Lunacy Act, 1890, was made. Plaintiff asserted that this order was obtained unlawfully. It was urged by the defendants that proceedings were barred by the Public Authorities Protection Act. The judge held that they were so barred, so far as any alleged irregularity in the reception order was concerned, and that the plaintiff's only cause of action was the alleged breach of contract to treat her as a voluntary boarder. This part of the case was then proceeded with.

The plaintiff complained that, on arrival at the hospital, she was deprived of her clothes and kept in bed. She had attempted suicide, on the day previous to her arrival at the hospital, by taking two ounces of laudanum. The medical evidence was that she had never demanded her release while being treated as a voluntary boarder, and that her confinement to bed was simply part of the treatment of the condition arising from her attempt at suicide. The plaintiff tried to argue the

question of the "morality" of suicide, illustrating the matter by the examples of a number of eminent persons who are alleged to have committed suicide. The argument indicated the difficulties which arise as soon as any other view is taken of "morality" than that it is the generally accepted standard of conduct at any given time.

In his summing-up the judge said that the question was one of contract. Had the plaintiff been properly treated? The same rules did not apply to people who were ill as might apply to ordinary people. There was such a thing as wise restraint. If the plaintiff's liberty was only restricted so far as was required by her condition, no offence was committed.

The jury found a verdict for the defendants, and judgment was entered accordingly, with costs.

We sympathize with Dr. Rambaut in the trouble which this case must have caused him. But the officers of mental hospitals can never be wholly free from the risk of worries occasioned by a litigious ex-patient.

REX v. ERNEST ALBERT WALKER.

This case, tried at the Central Criminal Court on June 21st before Mr. Justice Roche, raised points of interest as regards crimes committed under the influence of epilepsy.

Walker is 17 years of age, and is described as a footman. He was indicted for the murder, on April 22nd, of a district messenger boy. He was alone in his employer's house, in Lowndes Square, that evening, and about 6 p.m. he telephoned to an office for a messenger. A boy named Davis was sent. About 8.30 p.m. that same evening the prisoner had made his way to Tonbridge, where he informed a police constable that he "thought" he had committed a murder in London, mentioning the time at which, and the weapon with which, he had done it. He also said that he did not know why he had done it. The body of the boy Davis was found in the house. A letter was found, in the prisoner's handwriting, addressed to a fellow-servant, in which he first described what appeared to have been a plan for suicide on some previous occasion, and then went on to an account of the way in which he had killed Davis. And a kind of programme was found, also in the handwriting of the prisoner, which gave, in much detail, the procedure which he intended to adopt as regards the murder, part of which was actually carried out. The details of this programme strongly suggest the scenes shown in a sensational cinema film. There was nothing to show whether these documents were written before or after the commission of the murder.

There was a very strong history of insanity in other members of

the prisoner's family, on both sides. And there was evidence that the prisoner had suffered from fits since he was five years of age.

The defence was that the prisoner had committed the murder during an epileptic equivalent, or a post-epileptic state. And Dr. E. D. Macnamara, who had examined him in prison, gave evidence in support of this view. The prisoner had denied all recollection of the suicide plan described in his letter. He remembered having rung for the messenger boy. He stated that, before the arrival of the boy, he had felt something "snap in his head," that he was only partially conscious, that he had struck the boy on the head while in this state, and that he remembered nothing more until he left the house.

Dr. East, Medical Officer of Brixton Prison, gave somewhat contrary evidence. He had observed no symptoms of epilepsy. It is, of course, possible that no such symptoms occurred while the prisoner was awaiting trial, and nothing was published which throws light upon the frequency of the epileptic attacks. Still, Dr. East must have had the prisoner under observation for nearly two months.

The judge left the question of epilepsy to the jury, most properly warning them that they must not be influenced by the recent newspaper comments on the case of Ronald True. The jury found the prisoner "guilty, but insane," and the usual order for detention followed.

We feel that the proper verdict was returned. Taking all the published facts into account, especially the previous history of epilepsy, and the very characteristic "flight" to Tonbridge, it seems most probable that this crime was committed either in an epileptic equivalent or a post-epileptic state. The chief peculiarity, assuming the epileptic theory, is that the prisoner had, at least, some recollection of the acts performed by him. It was this point upon which Dr. East appears to have chiefly relied. And Dr. Macnamara also seems to have felt the difficulty. But we must remember that in such cases absolute amnesia, although undoubtedly usual, is not invariably found. We should have liked to have heard more details of the mental traits found in the prisoner, and especially the results of mental tests. A peculiar variability is sometimes found in the results obtained with such tests, either on different days, or with tests of the same character on the same day. This variability is frequently found in epileptic subjects, and is very characteristic of that condition.

Occasional Note.

Centenary of the Thesis of Bayle.

THE centenary of the presentation on November 21, 1822, to the Faculty of Medicine of Paris of the Thesis, entitled, "Recherches sur Les Maladies Mentales," by A. L. J. Bayle, in which for the first time the opinion was expressed that the symptoms of paralysis complicating insanity were those of a distinct disease with definite pathological signs, was celebrated in Paris on May 30th and 31st, 1922. It will be recalled that at the Annual Meeting of the Association held in York in 1919 under the Presidency of Dr. Bedford Pierce, Prof. George Robertson, speaking on behalf of the Association, welcomed Dr. Colin, who was delegated to attend, as the representative of the Société Médico-psychologique of Paris. He also asked him to convey to the sister society the hope that the centenary of the isolation of general paralysis as a definite disease should be worthily celebrated in Paris, especially as the discovery of the symptoms and pathological signs of this disease were almost entirely due to the work of French physicians. Dr. Colin conveyed this message to our *confrères*, and as a result the three societies of Paris interested in the study of mental diseases, namely, the Société Médico-psychologique, the Société de Psychiatrie, and the Société Clinique de Médecine Mentale, joined forces and made arrangements for a congress to which neurologists and psychiatrists of allied and friendly countries were invited. The conference was a great success in every way, and was attended by representatives of almost all the European countries and America, as well as by two descendants of Bayle—Commandants Bayle and de Brange de Bourcia. Our Association was represented by its President, Dr. C. H. Bond, as well as by Prof. Robertson (President-Elect), Dr. Helen Boyle (Council), Dr. Donald Ross, Dr. Norah Crow, Dr. Winifred Buckler, and by Lt.-Col. A. W. Overbeck-Wright, I.M.S.

M. Paul Strauss, the Minister of Hygiene, presided over the Inaugural Séance and the Dinner. It may be recorded that there were two circumstances that afforded our French colleagues peculiar satisfaction; the one, that our President, Dr. Bond, represented not only our Association, but was also delegated by the British Government, and conveyed a special message from Sir Alfred Mond, the Minister of Health; and the other, that the suggestion for celebrating in Paris the centenary of this great neurological discovery was first made in an allied country and by our own Association.

The papers were divided into two groups. There was a historical section, comprising among other papers one on "The Precursors of Bayle." This included the description of the clinical symptoms,

course and *post-mortem* appearances of a case, No. XV, by John Haslam, Apothecary (Assistant or Resident Physician) to Bethlem Hospital, in his work entitled *Observations on Madness or Melancholy*, published in 1798. This we now know to be the first undoubted case of general paralysis recorded in literature. The second group comprised the present-day conceptions of general paralysis. The papers were of high merit and were followed by interesting discussions. The whole proceedings have been published under the Editorship of Dr. Henri Colin and Dr. Réné Charpentier under the title *La Paralysie Générale (Maladie de Bayle)* (Masson et Cie.).

In addition to the scientific proceedings, there were receptions, fêtes, etc., given by "La Bienvenue Française" and private individuals. The members, especially those from this country, were most hospitably entertained.

In conclusion, it may be stated that Prof. Robertson was elected the Vice-President of the Congress, and that Dr. Bond was made one of the Honorary Presidents.

Part II.—Reviews.

The Mechanism of the Brain and the Function of the Frontal Lobes.

By Prof. LEONARDO BIANCHI. Authorised translation from the Italian by JAMES H. MACDONALD, M.B., Ch.B., F.R.F.P. and S.Glasg., with a foreword by C. LLOYD MORGAN, LL.D., D.Sc., F.R.S. Edinburgh : E. & S. Livingstone, 1922. Medium 8vo, pp. xx + 348, 66 illustrations. Price 21s. net.

The author of this work, Prof. Bianchi, is well known as a distinguished psychiatrist and as a pioneer in cerebral localisation, especially in relation to the functions of the frontal lobes. As early as 1888 he commenced experimental investigations upon the frontal lobes, and in 1894, during the session of the International Medical Congress at Rome, a committee composed of eminent authorities, including among others the late Prof. Hitzig and Prof. Henschlen, was appointed for the special purpose of examining and reporting upon the monkeys that had been operated upon by Prof. Bianchi, and which were still retained under observation.

The author states that although the judgment pronounced was distinctly favourable, it was hedged round by many reservations. He further states that a number of physiologists in Italy and elsewhere, including Prof. Luciani, had subjected his conclusions to criticisms which he complains were not always dispassionate and unprejudiced.

Prof. Bianchi admits that the final decision must rest upon a study of lesions of the frontal lobes in man. He states that he had collected a number of clinical cases, and had subjected published clinical cases

to close examination, and it became clear to him "that a considerable number, if not indeed the majority of these, could not be utilised, for many cases had been recorded for and against the high psychic functions of the frontal lobes, which in their ultimate analysis were destitute of any real value."

The author foresaw that the Great War would supply a great store of human material for the advancement of our knowledge of the physiology and pathology of the brain; he therefore decided to publish the present volume, which is devoted to the experimental aspect of the subject and to an initial phase of anatomical psychology. We should have wished that the translation of this work had been *after* the facts were collected in respect to lesions of the frontal lobes in man caused by the war. Moreover, so many advances have been made during the last ten years in our knowledge of the relations of body and mind.

This is indicated in Lloyd Morgan's foreword, thus: "All vital changes in the organism 'involve' physico-chemical events and transformation of energy, but the particular way in which these events and transformations occur 'depends upon' the presence of vital reactions. No vitality without change of energy (*involution*); no such changes of energy without vitality (*dependence*). Progressive development of novelty is the keynote of evolutionary progress. New orders or kinds of relation successively emerge at ascending levels (chemical, vital, mental); but in their emergence much novelty in the course of events at lower levels thereafter depends."

This paragraph of Lloyd Morgan is of importance in the light of our present knowledge of the truth of Hughlings Jackson's conception of evolutional levels. Dr. Lloyd Morgan applies this to the naturalistic theses which Prof. Bianchi consistently advocates: "There is an order of relatedness which we call mental, but its very existence involves physiological changes, or more specifically the establishment of sets of permeable neuron routes in the central nervous system. Let us so far follow Semon as to give the name *engram* to a permeable system of neuron routes, then the naturalistic thesis may be summarised thus: Every psychological complex involves neural engrams; for evolutionary naturalism every psychological complex involves a neural engram (permeable neuron) route, inherited or acquired; or if it be preferred, that all mental events involve physiological correlates."

We find no reference to the mnemonic theory of Semon in the text of the book.

Prof. Bianchi very rightly assumes a transformation of cosmic energy into neural energy, but he does not explain why or how this occurs, nor its relation to synaptic association and dissociation in connection with neural function. It is well known that all vital processes are dependent upon oxidation processes, and that if the brain be cut off from blood and its oxygen supply for six seconds, its highest functions cease and unconsciousness occurs. Marinesco has shown that the dendrites, dendrons, and cytoplasm of the neuron are studded all over with oxydase granules, but these are not seen in the nucleus nor on the axon—that is to say, all the oxidation pro-

cesses occur in the grey matter. It is well known that practically no oxidation processes occur in the axon, and that it is unfatiguable; presumably, therefore, the nervous current which it transmits is a physical change—a negative variation of the electric charge of its molecules.

It is probable that a stimulus coming from without and reaching the cell-body of the neuron excites the nucleus which liberates a katalase, which, acting upon the oxydase granules, liberates free oxygen. A stimulus along afferent permeable neuron routes which have been acquired or inherited results in discharge along efferent permeable neuron routes. The permeability clearly depends upon the condition of the synaptic junction, whether it be in the first term of a series—a simple reflex action, or the last of the series—a complex reflex action, such as a voluntary action.

We know that this synaptic junction requires an adequate supply of oxygen. Also we know that the endocrine organs which pour their secretions into the circulation have a very important influence in regulating the organisation and strength of nervous impulses, and adapting and conditioning these to meet the needs of the immediate situation. But these endocrine organs are under control of the oldest part of the nervous system—the involuntary system of Gaskell, the autonomic system of Langley. Probably if Prof. Bianchi were to write to-day his Chapter IX, dealing with the emotions and sentiments, he would refer to this subject and the important work of Cannon, Elliot and others upon the influence of the endocrine glands in relation to the emotions.

As the author in his preface states that the main object of the book is to put on record the experimental investigations on the frontal lobes, it would be unfair to criticise his views regarding the emotions and sentiments, in which he omits to consider these from the biological point of view as instinctive protective mechanisms.

According to the author's view "his experiments upon monkeys have shown that the fundamental and intermediate emotions are preserved (some altered) after removal of the frontal lobes, whereas the higher sentiments or emotions, as these are represented in outline in the monkey, are either absent or profoundly disturbed, corresponding with what is observed to follow severe injury of the frontal lobes in man. In the case of mutilated monkeys the conduct becomes reduced to simple reflexes, dissociated and inconsequential, unfurnished therefore with biophylactic power, whilst at the same time there is a prevalence of the organic reflexes of the primitive emotions (fear, anger). In normal monkeys, on the other hand, the conduct is prevailingly more protective. The animal presents an evident affective intonation and is more logical, his attitude being based upon perceptions, experiences, and judgments, whereas the organic reflexes of the primitive emotions are much reduced proportionately."

"After removal of the frontal lobes the social sentiment is abolished in monkeys; its very nature consists of emotions, variously associated ideas, impulses and inhibitions, and gives no grounds for presupposing the existence of organs which are different to those of the primitive emotions."

The author supports this view by a consideration of phylogenetic and ontogenetic investigations concerning the evolution of the brain and of the frontal lobes in particular, as well as by clinical and experimental observations which he claims are fairly constant and convincing. But the question arises whether this lack of sociability upon which the author lays such stress as a result of the destruction of the frontal lobes would not also be shown by a sick monkey or by an animal in which other silent parts of the brain, ontogenetically and phylogenetically of later development, had been destroyed on both sides.

Prof. Bianchi gives a detailed account of his numerous experiments and the behaviour of the animals, supporting his conclusions; he also advances arguments in favour of the highest and latest evolutional cerebral function being localised in the frontal lobes, by the assumption that the experimental condition of affairs finds a counterpart in human psychopathology. Thus he states—"If it is true that primary amentia (idiocy and imbecility) finds its explanation in defective evolution of the frontal lobes, especially the pyramidal layers, more than of any other part of the brain, we may institute a perfect parallelism between the mentality of the monkey that has suffered frontal mutilation as manifested by its conduct and the simian environment and that of the idiot in the human environment. Timidity, unsociability, selfishness, absence of the sentiment of friendship, idleness, laziness, tics, brutality of the sexual instinct when present are the most conspicuous features of idiocy in the human subject from the point of view of sentimentality." But the author, by commencing the paragraph by *If it is true*, implies a doubt whether the frontal lobes are alone affected by arrest of development in idiocy and imbecility. Indeed there is, as Bolton's careful micrometric measurements show, a general deficiency in the supra-granular pyramidal layer of the whole neo-cortex. However, the frontal lobes are the most affected, and the question arises whether this is due to an inborn primary neuronic deficiency of an evolutionally later developed cortex, or whether it may not be explained by precarious vascular conditions. The frontal lobes are more atrophied in general paralysis than other lobes of the brain, and before we knew that the presence of the spirochæte and the inflammatory reactions set up by its toxins was the essential cause of the decay and atrophy of the neurons, this disease was thought to be a primary, post-syphilitic abiotrophy of neural structures with secondary inflammatory conditions. Now, tendency to vascular stasis is a condition which would favour the active pullulation of the anaërobic spirochætes, therefore more active inflammatory processes with neuronic destruction. Owing to the rotation of the great brain backwards, the veins which debouch into the longitudinal sinus enter in a direction opposite to that of the current. This anatomical condition would cause a tendency to venous stasis of the frontal lobes more than other lobes of the brain, the veins of which drain directly into and are less distant from the lateral sinuses and jugular veins. Therefore the frontal lobes are the most liable to venous stasis, which condition might lead therefore to

diminished oxidation processes and help to retard pre-natal as well as post-natal growth, thereby acting as a contributory factor to an inborn neuronic defect. This explanation may also account for the fact that neuron decay is more obvious in the frontal lobes in the primary dementias, although histological observations show that similar nuclear and cellular neuronic changes can be found in the whole neo-cortex.

There is much in the book which will interest readers of the Journal, particularly the discussion on the functions of the frontal lobes. We would, moreover, like to call especial attention to some most interesting footnotes, particularly those on pp. 226-235, in which the author discusses in a most interesting and philosophic manner the history and origin of language; he does not, however, discuss the influence language has had in the dualistic doctrine of body and mind.

We agree readily with the note of the translator, "that the doctrine of the higher functions of the frontal lobes contained in this work is the outcome of many years of study and research on the part of one whose long record of scientific activity and achievement must claim our admiration and respect."

We are indebted to the translator and to the publishers for the admirable way in which Prof. Bianchi's important researches and philosophic conclusions on the mechanism of the brain have been presented to the medical profession.

F. W. M.

Psycho-analysis and the Drama. By SMITH ELY JELLIFFE, M.D., and LOUISE BRINK, A.B. New York: Nervous and Mental Disease Publishing Co., 1922. Monograph Series, No. 34. Medium 8vo. Pp. v + 162. Price \$3.00.

In past years many endeavours have been made to apply psychoanalytical principles to literature and other artistic productions, and herein some recent dramas are examined from such a view-point. In this way the unconscious material presented is suggestively dissected so that the human problems involved are demonstrated in a clearer form. The authors point out that the drama provides a useful outlet for the release of restrained and overcharged emotions on the part of the audience, and also permits a constructive representation of them. It may have healing value not only through psychic ventilation, but also through the solution of some unconscious conflict objectively presented to the spectator, who usually in no way realises this hidden process as part of his pleasure in the performance. It is thought that the consideration of such works of art from this point of view will not only clarify the physician's understanding of mental life, but will rouse him to recognise in such a direct aid to the patient whose psychic burdens he is grappling with. Nine dramatic plays are interestingly analysed, and illustrate various phases of the unconscious dynamic elements in human life. These studies have been previously published in separate form, but their collection together is welcome, and they constitute very instructive reading, which should appeal widely.

C. STANFORD READ.

Practical Psycho-analysis. By H. SOMERVILLE, B.Sc., L.R.C.P., M.R.C.S. London : Baillière, Tindall & Cox, 1922. Demy 8vo. Pp. x + 142. Price 6s.

What would be thought of a writer who published a small book therein describing some theoretical considerations of surgery with some slight details of technical procedure, and telling his readers that they should then be prepared to perform major operations? Such a conception is unfortunately analogous to this volume under review. Any medical man who has not "the time to read the larger works on the subject," and study such an intricate subject widely, should not presume to meddle with the mal-functioning of the human mind. Naively, however, Dr. Somerville suggests that those of his readers who wish to pursue the subject further may consult the works of Freud and others, and that a useful account of normal psychology may be found in a recent psychiatric text-book! In the face of such an attitude towards the study of the theory and practice of any form of psychotherapy, but especially so with regard to psycho-analysis, it must be pointed out that a long and painstaking acquisition of knowledge concerning the normal and morbid mind in all its allied spheres must precede any attempt to deal with human material. The main content of these pages is devoted to a brief survey of Freudian principles, and it is shown how these should be applied to elucidate and alleviate cases of war neurosis. The practical application, however, is that of a psychological analysis, and not psycho-analysis, which is a definite method very different from what the author describes. The book title is thus very misleading, and it is to be hoped that no reader who has read this little work will consider himself in a position to psycho-analyse or to know adequately anything of its practice, for the mode of procedure given in Chapter X may be a guide to some sort of analysis, but not to the special method named in the title. We can see a distinct sphere of usefulness in this volume for those who treat certain types of neuroses and who require added insight into the mechanisms involved, but since it deals mainly with war cases, it is a pity that for this purpose it was not published earlier.

C. STANFORD READ.

Suggestion and Mental Analysis : An Outline of the Theory and Practice of Mind Cure. By WILLIAM BROWN, M.A., M.D.Oxon., D.Sc., M.R.C.P.Lond. London : University of London Press, Ltd., 1922. Crown 8vo. Pp. 165. Price 3s. 6d. net.

The aim in this book is to develop the view that a sound system of psychotherapy is possible which combines suggestion and auto-suggestion on the one hand and mental analysis (including the Freudian system of psycho-analysis) on the other. Dr. Brown is of the opinion that "mental conflict" and "bad auto-suggestion" are the two general factors which operate in the production of neurotic symptoms, and it is upon the existence of these two factors that he bases his psychotherapeutic system. He finds that the mental conflict results in "a weakening of mental synthesis," which manifests

itself in the form of increased emotivity and suggestibility and favours the development of bad habits of mind and body. Thus, while the mental conflict can be elicited by mental analysis or "auto-gnosis," a procedure which enables the patient to acquire a knowledge of his hidden desires and motives, there still remain pathological reactions which have become habitual (stammering, drug habits, enuresis, etc.), and which require suggestion and auto-suggestion to effect their cure.

In the opening chapter the author indicates the necessity for assuming the existence of a subconscious or unconscious mind to account for the phenomena of suggestion. Few psychologists would be disposed to deny that processes occur apart from consciousness, to which the term "mental" is properly applied, but exception might reasonably be taken to the anthropomorphic terms in which the subconscious is here described. Thus the statement that "the subconscious goes on to realise an idea at its own leisure" might surely have been expressed otherwise. A brief outline is given of psycho-analysis and dreams. The author does not wholly accept Freud's theories, and he suggests an alternative theory of dreams, the merits of which cannot be estimated, as it is here described in a few paragraphs.

An account is given of the phenomena and nature of hypnotism, and its uses and limitations as a mode of treatment are indicated. Dr. Brown confines its use to cases of hysterical dissociation, and then not for the heightened suggestibility of the condition, but to facilitate the revival of repressed memories. He considers that repeated hypnosis has a harmful effect, and has found that patients who are treated in this way tend to become more weakly and less able to manage their affairs. Suggestion in a state of relaxation, without artificial dissociation, he regards as a greatly superior mode of treatment, and an account is given of his technique in dealing with his cases. The subject is discussed more especially in relation to M. Coué's claims and methods. The author finds occasion to criticise the "psychological background" of M. Coué's work, but records his appreciation of what he characterises as "his extraordinarily clear and penetrating insight into the *facts* of suggestion, his transparent sincerity, and his untiring zeal." On the whole, we are inclined to feel that Dr. Brown takes M. Coué's "Law of Reversed Effort" rather more seriously than it deserves.

It cannot be said that this volume provides any notable addition to our theoretical knowledge of suggestion. Dr. Brown endows the subconscious with attributes which tend to invest the phenomena of suggestion with an unnecessary atmosphere of mystery, and he scarcely makes it sufficiently clear that therapeutic suggestion is only one instance of the working of an innate tendency (no more and no less mysterious than any of the other characteristics peculiar to living organisms) which exerts a profound influence upon development from early childhood. If we interpret Dr. Brown's views correctly, it would seem that he does not believe in the possibility of a strictly scientific system of psychotherapy. This may be the case at present; and mental healing is perhaps an art (or a mystery) rather than a

science. Dr. Brown tends to accentuate the mysteries of "mind cure," and we suspect a strong vein of mysticism in his personal psychology. He contends that it is essential for the psychopathologist to acquire a philosophic and religious outlook in order to deal adequately with his patients; he finds an intimate connection between religion and mental healing; and he utilises mystical beliefs in his suggestive therapy. Now, though we do not question the practical value of Dr. Brown's methods of treatment, his theoretical views would seem to be fundamentally unsound and contrary to the whole spirit of modern psychology. The scientific attitude or frame of mind is totally different to the religious; the two cannot be harmonised or the functions of priest and doctor successfully combined. Science has solved many of the mysteries of life, but only when, as its history shows, metaphysical and religious assumptions have been discarded and a strictly impersonal attitude taken towards experience. If we are to acquire a knowledge of the causes of mental illness, it would seem necessary to approach our human material in a similar way, and there is no reason to suppose that our attitude will be less helpful than that which Dr. Brown regards as desirable, and it is certainly more likely to lead to a solution of the obscure problems of psychiatry. Dr. Brown is a learned person, but (we fear) a teacher of "divers and strange doctrines."

H. DEVINE.

Juvenile Delinquency. By HENRY HERBERT GODDARD, Director of the Ohio Bureau of Juvenile Research. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1922. Crown 8vo. Pp. x + 120. Price 3s. 6d.

Delinquency presents abstruse and complicated problems. And those presented by juvenile delinquency are of special importance. To deal with juvenile offenders on rational lines would go far to solve these problems for succeeding generations; for the recruits of the great army of delinquents are, in the vast majority of cases, enlisted when quite young. These things being so, we read this book with much eagerness. We were anxious to learn how Dr. Goddard, with his great experience and his opportunities, would assist us to comprehend and to elucidate our difficulties. And we must confess to a considerable degree of disappointment. The book commences with a brief but a fairly adequate statement of the problem of delinquency. The author, however, is content to make the statement about an offender that "he could not help" committing the offence, without making clear what his position is on the absolutely fundamental question of determinism. But when we come to look for guidance in making scientific investigations into the cases of individual delinquents we do not get much assistance. We have an interesting account of the administration of the Ohio Bureau of Juvenile Research. But we have little else. We have details of a number of physical defects found among Dr. Goddard's subjects, without any adequate discussion as to what influence, if any, they are supposed to have upon the causation of delinquency. We are told, for instance, that

among 460 subjects examined, 117 were "round-shouldered," and that 10 were "pretubercular" (whatever that may mean). It is not easy to see what scientific value the record of observations such as these can possibly have. We hear much about the occurrence of congenital syphilis in delinquents. And the author implies that this is an important causative factor. It may be so. But, before making definite pronouncements on this point, we should require to know the proportion of congenital syphilis among non-delinquent subjects. Strangely enough, the author does not touch the question of alcoholism.

The author deals with the word-association method. And he appears to lay stress upon this as a guide in diagnosis. No doubt the method is often of service. But it is, after all, a somewhat mechanical approach to the unconscious mind. And these supposed short cuts to diagnosis require to be used and interpreted with the greatest caution. There is always the danger that such methods, just as with the use of the Binet scale for the estimation of intelligence, may distract attention from the real essential—the careful investigation of the individual case by an experienced expert examiner. The author states that uncomplicated cases of feeble-mindedness need only be kept under observation for "a few hours." We strongly demur to this. There are, certainly, a small number of cases in which the mental defect can be quickly recognized. But if hasty diagnosis is attempted mistakes are quite certain to be made, and nothing is more likely to bring our methods into disrepute. We feel that the ideal plan is to have every case under observation, in an institution, for at least a week.

But the book may be viewed, and is perhaps intended to be viewed, in another light than that of a scientific treatise. It may be regarded as an attempt to interest the lay public, and especially those concerned with the administration of the law, in the investigation of delinquents. From this aspect we may hope that the book will be useful. Anything which impresses upon the public how futile, how cruel, and how grossly extravagant are our present methods is to be welcomed. The book does this. And it further points out that the only solution of the problems is to be found in the expert examination of individual cases. It is by the study of causations that we can hope to make progress. It is certain that the future must see a great elaboration of our system of examination. This examination is, preferably, to be conducted in institutions. But there may also be an opening for travelling examiners, as described by Dr. Goddard.

The book contains no index. It would tax the ingenuity of the famous "Mikado" to devise the punishment which fits this crime.

M. HAMBLIN SMITH.

The New Psychology and the Teacher. By H. Crichton MILLER, M.A., M.D. London: Jarrold's, Ltd., 1921. Crown 8vo, pp. 232. Price 6s. net.

Some words of pity must be expressed for the teachers of children at the present time. On the one hand they are being bombarded by the inventors of new methods, and on the other hand followers

of Freud, Jung, etc., armed with new theories of mind, give them no rest. The result is that the poor masters and mistresses are confused. They are nervous lest by some act they may lead to a repression which may do lifelong damage in the case of a child committed to their trust, and yet afraid to relax a discipline which long experience has taught to be good.

The fact of the matter is that a little knowledge is a dangerous thing, and this criticism Dr. Miller has expected and has tried to disarm by saying that a little vision is better than total blindness. This is to a certain extent true, but is not altogether a happy comparison, because a little vision may be a distorted one, which may be worse than absence of sight.

Still, it must be admitted that the new psychology has something to tell the teacher, and if he will only receive it, remembering it is very *new*, and like all new things not very certain, he may be helped thereby. The author is a follower of Jung, and the reason for the book is to indicate how the doctrines of this branch of analytic thought can be applied to increase the power of the teacher "to help the child in three principal ways—in his adjustment to reality, in his adjustment to authority and to the herd, and in his sex education." It is to be noted that there is no suggestion that the teacher should analyse the child—he is only to analyse himself. Dr. Miller may protest against being described as a follower of Jung, as, in his preface, speaking of the two schools (Freud and Jung), he says no attempt is made to present the views of one school exclusively; but as a matter of fact his dream analyses which illustrate many of his main points are typical of the Zurich School, and if anyone wishes to learn this school's theory of dreams he could not have a better introduction than the present book.

There are ten chapters with the following headings: Introductory, authority and suggestibility, reality and phantasy, emotional development of the boy, emotional development of the girl, the unconscious motive, mental mechanisms, dream symbolism, the herd instinct and the herd ideal, educational methods. The chapters which deal with the emotional development of the boy and the girl are the best in the book and most interesting. In that on mental mechanisms Dr. Miller has tried to compress into twenty pages the greater part of the Freudian psychology, and this, of course, is an impossibility. The average teacher, after reading this chapter, will probably be in a very fuddled condition of mind. With this exception the book is easy reading, and progresses in a logical manner. There are several good things, some of which I am tempted to quote: "Phantasy is like an air cushion—there is nothing in it, but it eases the joints wonderfully." "Christian Science is to a large extent based on a phantasy of health, which is a retreat from reality. The sufferer refuses to accept the fact that he has toothache, and describes it as a 'false claim,' thereby making use of this same principle of attempting to twist reality into a congenial form, rather than adapt oneself to its uncongenial elements."

A few words must be added with reference to the form in which the book appears. It is well printed in easily legible type. At the

beginning of each chapter is a foreword summarising the contents, and thus enabling the lazy to skip, but more frequently inviting those interested to proceed. The author has the literary art, and his style is clear and gives much pleasure to the reader. Moreover, he knows how to soften the asperities of some of the hard sayings of Freud as regards sexual matters. If the teacher must know something of the new psychology, no better guide could be found than Dr. Miller.

R. H. STEEN.

Group Tests of Intelligence. By P. B. BALLARD, D.Litt. London : Hodder & Stoughton, Ltd., 1922. Crown 8vo. Pp. x + 252. Price 6s. net.

Commenius, in his *Great Didactic*, states, "We promise, then, such a system of education that all the young shall be educated except those to whom God has denied understanding." Dull and defective children depress teachers in ordinary classes, so that special means have been devised for their education. As Dr. Ballard indicates, when the fate of a child hangs in the balance, the tests applied are individual and *vivā voce*. The difference between modern mental tests and the old *vivā voce* examination is that in the latter the examiner trusted to the inspiration of the moment and did not standardise his material. Standardised individual tests were born in France ; the system takes time and cannot be applied by everyone ; proper training is essential. Group testing was born in America, according to Dr. Ballard, and its mother was the stern necessity for quick decisions in time of war. The object of group tests is to assess intelligence roughly for various purposes, it being understood that when necessary any given subject must receive an individual examination. The underlying idea is that while the ordinary methods of examination indicate past attainments, tests should indicate future capacities—an ideal, however, as yet unachieved. Watts has summed up the present position as follows :

1. The idea that innate capacity could be measured apart from the influences of education and training has proved barren.
2. The attempt to construct a single reliable test of general intelligence has been given up as impossible.
3. A series of tests, if covering a wide range of representative forms, will give a rough general average level of intellectual ability. But all average measures should be distrusted in so far as they obscure significant individual variation. Tests are used in schools for testing normal children to note status and progress and to detect defective or supernormal children. The first use may rightly apply to all teachers, the latter uses to specialists only, the group tests perhaps serving to indicate which children deserve or need further investigation.

For group use tests have had to be made fool-proof, in the course of which their value as individual indicators has been lost. None the less, applied *vivā voce*, personally and individually, and not in writing or by action *en masse*, much may be learnt from them of value to the clinician. They have been adapted to all grades—to the illiterate as well as to the genius—and full details of these now

in use are described by Dr. Ballard. It must be realised that the saying of Solomon with regard to books has a very real application to present-day systems of mental tests, but a knowledge thereof should be part of the equipment of the psychiatrist seeking to arouse an adequate interest in a patient to enable him to penetrate behind the veil of his mental mechanisms. The tests given have been standardised in a measure quite beyond those formerly in use for clinical purposes, and applied with discrimination would serve their purpose for clinical and individual use. Certain of these are altogether too abstruse.

Dr. Ballard well states their real value for scholastic purposes when he points out a child with a high mental ratio is well suited for book-learning, whatever his calendar age may be, while the child with a low mental ratio never takes kindly to books. Fortunately such a child has a thick skin and a fine system of defensive mechanisms.

The book may therefore be commended as a necessary part of the library of every medical psychologist. He will find it a valuable guide between wheat and chaff, since the tests described and criticised vary from simple common sense almost to Carrollian nonsense. The latter phase may be exemplified by the following American curiosity :—

" If ontogeny invariably ingeminate phylogeny, circumscribe the word giving the location of the OURCQ ; if not, underline the word that locates the MANDIBLE : England, Foot, Utah, Face, Peru, France, Arm, India."

It is deeply to be regretted that a really useful procedure in its own place and under proper conditions should be exposed to discredit by the wildness of extremists, and after perusing such there can be no wonder that the public is becoming alarmed at the tendency to substitute group tests for old-fashioned examinations, and fear lest otherwise worthy candidates should suffer for a lack of a specialised mental agility, for it is this more than anything that is measured when such procedures are adopted with a time limit.

F. C. S.

Modern Developments in Educational Practice. By JOHN ADAMS, M.A., B.Sc., LL.D. London : University of London Press, 1922. Crown 8vo. Pp. vi + 302. Price 6s. net.

The ancient Judean sage spoke from experience when he said : " Train up a child in the way he should go, and when he is old he will not depart from it.—Even a child is known by his doings, whether his work be pure and whether it be right." The seeds of future actions are planted in childhood in the home, and in that substitute for the home and family—the school. It is then essential that both the student of normal psychology and the practitioner in mental disorders should be acquainted with the nature of the influences brought to bear on the children during the plastic period of youth. No better guide can be recommended than the present volume, ripe with all the experience of the author as a professor of education

and as director of a great training college for teachers. Education is a preparation for life in the world—a world in which children cannot live out their lives without restrictions, but in which they must experience not only the general restraints that come from society, but also the authority of some persons placed in a position of superiority. School must therefore prepare for the recognition of this, while at the same time leading to the best and freest development of individual character and personality.

This volume discusses the changes in educational practice during the last century, and shows the relation between the new education and the new psychology. The key-note turns round an old sentence in the Latin grammar, "Verbs of teaching govern two accusatives, one of the person, another of the thing"—"the master taught John Latin." Old teachers laid most of the stress on Latin; the new lay it on John. The change has slowly come about since the days when Rousseau expounded his views on the education of *Emile*; education is now *paidocentric*.

A very important feature concerns ideas of discipline. There have been three schools of thought: the old *repressionists*—plebotomists as they have been termed—now almost passed away; the *impressionists*, following the schools of Arnold and Thring, who guided by the influence of a dominant personality; the *emancipationists*, who urge free discipline. The latter, however, cannot remove the teacher entirely. His personal influence remains, and it is useless for him to ask his pupils to do as I say, not as I do. Free discipline depends on the personality of the teacher: a "c" personality cannot allow what is easily done by an "a" personality. Even in the Montessori schools, which are supposed to be free, there are limitations. The child, it is true, may choose his own occupation for the time, but he must use the apparatus as directed; he may not play bricks with the didactic material. All the newer methods place the child first; "Montessori" centres all, except the apparatus round the child; the "Dalton Plan" asks the teacher to step aside, and the children act as they will, provided they produce the required results; the "Gary Scheme" builds the school around the child's requirements; the "Play Way" and the "Project Method" are almost entire surrenders to his point of view. The child has come into his own. Tranio's protest, "No profit grows where no pleasure is ta'en," is widely accepted, though few endorse completely the subsequent—"In brief, sir, study what you most affect." Interest and attention must be evoked. Attention may be effortful or effortless; *nisic* and *anisic* are suggested as terms for these, and the teacher should so far as possible use the latter, since the former cannot be of long duration. Some of the former must come sometime. All work is not interesting in itself to all children. Prof. Adams contrasts the "old grinders" with the "primrose path," and shows both must come in for education to be successful under present-day conditions. The outlines of the different modern systems coming under the latter category will repay study by any psychiatrist.

There is an interesting analysis from the educationist's standpoint of the changes in psychology from the old-fashioned equation: the

psychological = the conscious, to the modern views of the action of the unconscious. We are told the transition is well if whimsically expressed in a note of Prof. Woodworth : "First Psychology lost its soul, then it lost its mind, then it lost consciousness ; it still has behaviour of a kind." It is pointed out that there is a closer relation between educational psychology and the newer psychology derived from a study of the neuroses than has commonly been noted. The threshold of consciousness is a well-known Herbartian term, and the former "appereception mass" is only "complex" writ large without any sinister meaning. The iceberg metaphor as to the relation of the actually conscious to the hidden is as familiar to the Herbartian as to the Freudian. The chief difference in the author's opinion is that the educationist can take a joyous view, looking on the child as an inheritor of the Kingdom of Heaven with a wholesome urge or will-to-live, while some of the modern school of abnormal psychology stress the gloomy views of original sin and a peccant libido which would trace apparently reasoned actions to conditions scarcely compatible with man's zoological title of *homo sapiens*.

It is also shown that the teacher recognises the field of the medical practitioner in dealing with abnormal cases, which he himself is glad to hand over ; that it is not their *métier* to resolve complexes, and that it is enough if they have such an acquaintance with psychology as may prevent them setting up unnecessary complexes by over-stimulated emulation or thoughtless sarcasm. The true teachers carry on their work in school by dealing with the pupils on a wholesome human footing.

F. C. S.

Part III.—Epitome of Current Literature.

I. Psychology and Psycho-Pathology.

The Psychology of Exploration. (*Psyche*, July, 1921.) Priestly, R. E.

A unique account of the character reactions observed and experienced during Antarctic exploration. The writer deals with the reactions of (1) the party as a whole, and (2) of sections isolated on special duties, or by misfortune. The life shows well-defined phases. The journey south and the approach to the initial goal is a time of high resolve, anticipation, and exhilaration. Quickly there follow periods of intense labour in which physique is searched to the utmost, but these are followed by times of untrammelled relaxation ; these contrasts persist throughout, and produce the fascination so characteristic of polar journeys.

The winter is a dominant environment, normally exhibiting blizzards, frigid temperatures, auroral scintillations in a night jet-black, the sighing and sobbing of the ice-pack, and gurglings, snortings, and blowings (of seals or inexplicable), which all react on the individual, at times inducing fear and refusal to work. Summer means sledging expeditions, and in the selection of teams of three or six compatibility is shown to be an absolute essential. The hardships which weigh on

conscious life are hunger and thirst; lack of sleep due to intense cold; monotony of colour, work, companionship; gruelling work; inseparability from companions; and physical dangers. Hunger produces a craving almost unbearable. The party talks food, thinks food, and dreams food. Lack of sleep is lowering physically, and the temperament suffers. Unvaried monotony induces a monotone of mood, taciturnity, intolerance of waggishness, and ready irritation. Conversation becomes taboo, raillery unsafe. With prolongation of stress illusions become frequent and affect the whole party uniformly. The gruelling work leads to the obsession that companions are all "slacking in the trace." This occurs in the noblest characters, and among friends of tested worth. Companionship is perpetual—the opposite of loneliness; in fact, homesickness is absent almost always. Temporary loneliness at any cost is desired, and it is impossible, for all tasks must be done in pairs.

The predominant effects on mind and temperament seemed to be most revealed in dreams. Most prominent were dreams of food, relief, and disaster to companies. Food dreams were undoubtedly first, and among them some in great detail in which it was suddenly realised that a shop or restaurant lay just round the hill, where all these creature needs could be supplied—arrival there proved it closing day, and too late. To smokers the shop would be a tobacconist's; in all cases, however, the shop was closed. Relating of one's dreams to one's fellows became a relaxation. Two of the party were of lethargic temperament; these dreamed of feasts and always achieved satisfaction. The other four always awoke from the dream when the food was laid and did not taste of it. The two could describe with gusto the menus they went through. This became a grievance to the rest, who had to reason themselves out of the idea that an unfair advantage had been taken, as the feeling developed that to equalise matters the rations of the two should be reduced.

Men mentally unfitted for polar work are liable to temporary mental aberration during or immediately after an expedition, but most readily in real hardship. The patient is irresponsible, and has the most extraordinary hallucinations. One most important conclusion appears to emerge, *viz.*, that the inelastic mind and temperament succumbs, whereas the more highly-strung and sensitive type better understands unprecedented strain.

JOHN GIFFORD.

2. Neurology.

A Review of Recent Literature on Neurosyphilis. (Archiv Neur. and Psychiat., February, 1922.) Solomon, H. C.

The author singles out the new edition of Nonne's *Syphilis und Nervensystem*, and a new book by Wilhelm Gennerich, *Die Syphilis des Zentralnervensystems*, which he regards as the most important work on neuro-syphilis published to date.

Are there strains of spirochaetes with predilection for the nervous system? Marie and Levaditi, in 1920, reviewed the various theories in favour thereof. They note the infrequency with which active

skin lesions have occurred in neuro-syphilitic cases; also patients infected from the latter source develop neuro-syphilis. In experimental work in 1913 they inoculated a rabbit with human blood from a case of general paresis; the disease took and was passed through three generations of the animal. The incubation period was two to three times as long as that when infection was by spirochæte from primary lesions.

Rabbits inoculated with paretic virus are not immune to the virus from other sources. In the dermatropic strain average incubation is 42 days, in the neurotropic 95 days. By a second inoculation these periods are reduced respectively to 15 days and 75 days. The primary lesion in the dermatropic strain is indurated with marked border ulceration, and results in endarteritis, periarteritis with intense infiltration, and much subsequent new connective tissue; in the neurotropic type there is papulo-squamous erosion with slight ulceration and desquamation, the sequelæ being perivascular lesions with little endarteritis and less new tissue formation.

The monkey took the dermatropic, but not the neurotropic strain. Man receives the dermatropic type, but the experiments were not here successful in reproducing the neural disease. The elucidations have been severely criticised, and are not final, but none the less are among the most important contributions to the subject.

Wile and Hasley observe that the spinal Wassermann reaction is positive prior to that in the blood.

McIver, in the primary and secondary stages of syphilis, found slight lymphocytosis in the majority of cases, protein increase occurs later, and positive Wassermann was absent, using 6 c.c. fluid; he concludes it is not reasonable to assume that the spinal Wassermann will indicate which patients will develop central nervous system syphilis.

Nicolau, in 51 primary cases, found lymphocytosis in eighteen at the beginning of the third week; with adenopathy this is one of the earliest manifestations of general infection. Pupillary inequality was found to be highly suggestive of cerebro-spinal lymphocytosis.

In a series of 624 early cases of syphilis affected more than six months and without symptoms, 35 *per cent.* had abnormal central nervous systems. Lack of symptoms is the outstanding feature; few patients complain of disability in syphilitic meningitis even when the cerebro-spinal fluid is visibly opalescent. Hence in all early syphilis the nervous central system should be thoroughly investigated, which is rarely done by the syphilologist.

The "abortive treatment" in the incipient primary period leads to the discharge of patients as cured, yet in such neurosyphilis develops later. Many writers concur in the advocacy of intraspinal treatment to produce a negative spinal Wassermann. Solomon agrees that six to eight injections of arsphenamin followed by mercury leave a positive fluid, but intensive administration (larger and more frequent doses over a longer time) will produce normality in the spinal fluid—treatment sufficient to suppress secondary skin lesions is quite inadequate.

Nicolau further cautions that a persistently negative Wassermann

consequent on treatment is not dependable as a proof of the abortion or cure of the disease ; there must also be evidence of non-irritation of the cerebrospinal fluid. Solomon believes this one of the most valuable dicta recently enunciated.

It is then definitely shown that in syphilis the cerebrospinal axis is early infected in many cases. Suitable combative measures should therefore be immediately adopted. JOHN GIFFORD.

3. Clinical Psychiatry.

Thyroidal Psychoses [Les psychoses thyroïdiennes]. (Le Prog. Méd., April, 1922.) Laignel-Lavastine.

The present article is chiefly concerned with those thyroid abnormalities which have been found associated with the so-called *affective psychoses*. The author himself has met with many cases of melancholia, hypomania, and anxiety psychosis, which, at the same time, were goitrous. Thus in a case of agitated melancholia presenting thyroid enlargement with signs of hyperthyroidism, complete mental recovery followed the removal of a thyroid cyst. In another case of melancholia with a large goitre the latter was treated by radio-therapy, with the result that the signs of hyperthyroidism diminished and the melancholia disappeared.

In regard to the pathology of such cases the author affirms that, in spite of the diversity of lesion as shown by the microscope, they nevertheless possess one common link, *viz.*, the more or less constant presence of the cylindrical epithelial cell, which would appear to be the histological expression of hyperthyroidism.

The question of aetiology is necessarily somewhat involved, having regard to the coincidence of thyroid disturbance and mental disorder in the same subject. It is a recognised fact that emotional shock and psychogenic factors account for the onset of many of these cases. In so far as the actual aetiological mechanism is concerned, Laignel-Lavastine supports the view originally put forward by Widal. The latter has shown that the mechanism is not, as was formerly believed, a chemical one ; but that very often it is a physical mechanism—colloidal modifications taking place in the humours as a result of shock or other psychical cause. Thus we see that the emotions may determine not only nervous but also humoral modifications, which manifest themselves by changes in the colloidal equilibrium.

The author's clinical observations, added to the important findings of other writers, furnish convincing evidence in favour of the existence of a relationship between thyroid disturbances and mental disorders. It may be objected that, though thyroid modifications are frequent, there may be no accompanying mental perturbation. In answer to this the author points out that in order to have psychic manifestations a mental predisposition is necessary. It is therefore possible to understand that those persons who have not shown these psychological reactions possess greater cerebral resistance. Once this resistance is lowered these manifestations make their appearance.

NORMAN R. PHILLIPS.

Nocturnal Palsy.

It is many years since this condition was described by Dr. Weir Mitchell, but one sees little reference⁽¹⁾ to it, though it is not uncommon in neuroses originating in the war. The patient wakes from sleep with his senses fully alert, but unable to move a single voluntary muscle. He is naturally alarmed and makes attempts to move or speak, but without avail, till suddenly with what seems a great effort he regains his power. That he is really awake when in this paralysed state is shown by the unbroken continuity of his sensations of sight and hearing. One of my patients woke in daylight to see a friend in his bedroom. He tried to speak, but could neither speak nor move for some time; when he succeeded in doing so the friend was just as he had previously seen him. The duration of these attacks is variously estimated at from a few seconds to two or three minutes.

The late Dr. Charles Féré,⁽²⁾ of Bicêtre, recorded a case in which only the right side was paralysed; he says nothing about speech.

P. C. CAMPBELL-SMITH.

4. Treatment of Insanity.

The Treatment of the Insane in Pavilions without Detention [Le Traitement des Aliénés en "Pavillons Libre"]. (Bull. de la Soc. de Med. Ment. de Belg., February, 1922.) Laruelle, L.

The writer's experience shows the need of co-operation between magistrates and alienists. Representations which led to legal investigations were made by the former confederates of an alcoholic woman who was improving rapidly in the sanatorium of Fort-Jaco. The inquiry was conducted in a spirit of antagonism and suspicion which spread discontent among patients. The removal either home or to the asylum was ordered of certain patients well suited to sanatorium care who had not asked to go. These included chronic psychoses without anti-social conduct, paranoias, simple dementias, transitory and curable psychoses, etc. In particular the removal home as mentally fit and wishing to leave was ordered of a blind paraphrenic who made a stereotyped demand for discharge to go to "X, where she had the freedom of the city," but who remained, though she carried the writer's signed permit, and who refused to depart with her friends. Other cases, unable to exercise volition (e.g., of stupor) were to be certified.

These events raise wider issues. For twenty years the writer has conducted, with magisterial approval, an open sanatorium outside the Asylum at Liege for patients either throughout their illness or before or after asylum treatment. Experience teaches that such institutions increase curability, shorten the duration of psychoses, prevent psychic contamination and morbid imitation and lessen the frequency of certification. Yet apparently these and even open wards in asylums are against Belgian law, which allows only home

(1) "Deuxième note sur la fausse réminiscence," *Journ. de Neurol.*, Bruxelles, about 1905.—(2) "Les crampes et les paralysies nocturnes," *La Médecine Moderne*, 1900, Dr. C. Féré.

or asylum treatment. A reaction towards stricter legal enforcement threatens the many existing institutions and kills progress. Is illegal detention of a sane man—that man constantly mentioned and never found—more socially menacing than cases of incipient insanity, constitutional psychopathic disorder, drug addiction, curable insanities, harmless manias and mental infirmities? The writer demands relief from his dilemma of being either a bad citizen contravening the law, or a bad physician withholding from his patients treatment in the spirit of contemporary medicine. The Société de Médecine Mentale de Belgique, which has long advocated improved organisations for neuro-psychopathic diseases, should urge both toleration and changes in the law. Confinement in asylums should be exceptional. Sanatoria should be scientific, should have the responsible physician resident and equal to asylum status, and be inspected sympathetically by a medical body available also for consultation. The patient's material interests should be protected by legal authority.

MARJORIE E. FRANKLIN.

A Plea for more Accurate Diagnosis and Intensive Treatment of Syphilis in State Institutions. (State Hosp. Quart., August, 1921.) Ross, J. R.

This plea for greater use of the opportunities which hospital control affords for the diagnosis and treatment of syphilis is based on replies to a questionnaire sent to institutions for the insane and mental defectives in U.S.A. and Canada, and on personal experience as superintendent of Dannemora State Hospital. At Dannemora, of syphilitic cases which received adequate treatment (limited by expense to 25 per cent.), with the exception of paretics, all responded by changes in the Wassermann reaction of blood and spinal fluid and by physical improvement, and nearly all by mental improvement, usually preceded by temporary loss of weight and occasionally by transitory mental exacerbations. Reports of four cases are given as examples. Treatment, the details of which are described, consisted in four courses of neo-arsphenamide given intravenously combined with mercury salicylate intramuscularly and sodium iodide by mouth, and with attention to diet and hygiene. Some paretics showed reductions in Wassermann, blood-count and globulin, but not in gold curve, nor has there, as yet, been a cure. General paralysis, however, is simulated by curable forms of neuro-syphilis. Syphilis may be a factor leading to loss of mental balance even without actual cerebral infection. A routine Wassermann test should be made on all inmates, and all serologically or clinically syphilitic should receive intensive treatment.

MARJORIE E. FRANKLIN.

Training Aides for Mental Patients. (Arch. of Occupat. Ther., February, 1922.) Slagle, Eleonor C.

Emphasis should be laid on the relation of directed activity to mental adjustment and social rehabilitation. There are three groups to be dealt with: (a) Patients likely to remain permanently in hospital,

(b) recoverable hospital cases, (c) pre-hospital work at clinics. The candidate for training should not be too young and should be selected by a committee. Personality and character are of the highest importance, and the work demands consecration and genuine human love. The training is both theoretical and technical. The student is taught a little of general hospital administration, hospital etiquette, and the relation of her work to the organisation as a whole. She starts with the lower grades, and is taught something of the inter-dependence of the mental and physical, of the nature of habit reactions and methods of overcoming bad and forming good habits, including the habit of attention. Habit training is especially important in the reception service and with the unemployed deteriorating class. The deteriorated patients of many years' standing are the most difficult of all, but the writer looks forward to a lightening of this burden in the future when improved methods of prophylaxis and treatment have been used from the beginning. However, these patients are entitled to a chance, and even now results are encouraging. The next grade is the kindergarten. Here the student learns methods of re-education along lines of sensory stimulation and training : colour, music, simple exercises, games and story-telling are employed along with occupations. In the grades above this patients are given manual occupations chosen to meet individual needs. They are of increasing complexity, increasing interest, and require increasing concentration. Still higher is the occupation centre or "curative workshop," where really beautiful work is sometimes done. Patients may be sent here for special observation, or before parole, or before passing to the "pre-industrial" or vocational training departments. The student should here make a general survey of the patient from the point of view of his personal needs, interests, inhibitions, emotions and relation to environment and the construction of a balanced programme of work, rest and play.

The student during training participates in the physical work with patients, e.g., gymnasium and games. The play spirit is often warped, especially in town-dwellers; therefore games, folk dancing, gymnastics, playground activities, competitive games, etc., are included in the régime. Students are further taught to buy equipment and to utilise available material. Careful observation, accurate note-taking and written records are insisted on from the beginning, and the interpretive side is emphasised, for the writer finds that, while most aides understand crafts, many do not realise the application to mental patients. The results of the work have been encouraging: patients are helped to parole and discharge, or, if they must remain, to be happy and active in the hospital community. Success depends largely on the persistence, versatility and patience of the occupational therapist.

MARJORIE E. FRANKLIN.

The Philosophy of Occupational Therapy. (*Arch. of Occupat. Ther.*, February, 1922.) Meyer, Adolf.

For thirty years—first at State Hospitals for the Insane, and later as Medical Director of Phipps Psychiatric Clinic—Dr. Meyer has

assisted at the progress of occupational treatment for mental illness. He has seen it develop from a purely industrial type of employment with mainly utilitarian aims to the educational methods of occupation and recreation under the direction of specially trained organisers, in establishing which Mrs. Meyer was one of the pioneers.

The aim should be to combine work with pleasure, and to supplement the centralisation involved in institutional life by individualism. Psychopathic disorders present problems of adaptation and of living and of habit deterioration. Occupational therapy helps to bring the patient into contact with reality, to strengthen the "fonction du réel," to give a sense of achievement and completion especially valuable to sufferers from feelings of inferiority, to increase muscular control and to improve habits, and, perhaps most important of all, it develops in the patient a sense of the value of time and of performance. The writer discusses in this connection the modern interest in "energetics" in physics and chemistry and "behaviourism" in psychology.

Time, rhythm, activity are beacon lights of the philosophy of the occupation worker. The capacity of *imagination* and the use of *time* with foresight, based on appreciation of the past and the present, are culminating features of man's evolution, in the higher stages of which he integrates the simpler phases into new entities. *Rhythm* operates throughout nature. The healthy human organism pulsates rhythmically between rest and activity, using and living and acting its time in harmony with its own nature and the nature about it, and feeling itself to be a self-guiding energy-transformer in the real world of living things. Nursing and immediate therapy are concerned with the arrangement of the patient's time—the twenty-four hours of his day—the engagement of his *interests*, and the orderly *rhythmic* distribution of work and play and rest and sleep in a happy and natural atmosphere. There is a natural rhythm between vision and performance. Thought, reason and fancy are steps to *action*, and performance is the best test and expression of personality.

Dr. Meyer warns against undue interference and meddling. Help should be confined to giving opportunities to individuals to develop along the lines of their personal interests, cravings and capacities with only such guidance, encouragement and stimulation as may be necessary. There are many ways of approach, and sometimes the patients' delusions suggest lines of help. Examples are cited, e.g., picking hair of mattresses. This is suitable for excited cases, as it does not tax the attention unduly nor stimulate the larger physical movements. Among the handicrafts taught are raffia and basket-work, weaving, bookbinding, metal and leather work. Patients with inferiority feelings are benefited by constructive work of some emotional value, and which can be finished in one or two sittings. Praise is helpful, but an adequate standard should be maintained. The treatment may well begin with a *régime* of "pleasurable ease," the creation of an orderly rhythm in the atmosphere, with perhaps some music, dance and play, leading up to varied activities and work.

In considering the wider applications of the subject, the writer points out that commercialism and the over-valuation of quantity

with neglect of workmanship in industrial life leads people to seek satisfaction for their interests in unproductive activities outside their work. Experience gained in dealing with difficult special needs may help to solve problems in the philosophy of ordinary life.

MARJORIE E. FRANKLIN.

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE EIGHTY-FIRST ANNUAL MEETING of the Association was held on Wednesday, Thursday, and Friday, July 19 to 21, 1922, in the Royal College of Physicians and in the University of Edinburgh, under the presidency, in the early proceedings, of Dr. C. Hubert Bond, *C.B.E.*, *F.R.C.P.*, and later that of Prof. G. M. Robertson, *M.D.*, *F.R.C.P.Edin.*

MORNING SESSION.—WEDNESDAY, JULY 19.

Dr. C. HUBERT BOND, President, in the chair.

The Council, Educational, and Parliamentary Committees had met during the previous two days, July 17-18, at the offices of the General Board of Control for Scotland, 25, Palmerston Place, Edinburgh.

MINUTES.

The minutes of the eightieth annual meeting, held in London, having appeared in the Journal, were held as read, and were approved.

ELECTION OF OFFICERS OF THE ASSOCIATION.

The PRESIDENT proposed that the officers of the Association for the year 1922-23 be:

President.—George M. Robertson, *M.D.*, *F.R.C.P.Edin.*

President-elect.—Edwin Goodall, *C.B.E.*, *M.D.*, *F.R.C.P.*

Ex-President.—C. Hubert Bond, *C.B.E.*, *D.Sc.*, *M.D.*, *F.R.C.P.*

Treasurer.—James Chambers, *M.A.*, *M.D.*

Editors of Journal.—J. R. Lord, *C.B.E.*, *M.B.*, H. Devine, *O.B.E.*, *M.D.*, *F.R.C.P.*, G. Douglas McRae, *M.D.*, *F.R.C.P.Edin.*

General Secretary.—R. Worth, *O.B.E.*, *M.B.*

Registrar.—Alfred A. Miller, *M.B.*

This was agreed to.

He next proposed that the nominated Members of Council be:

Sir F. W. Mott, Drs. W. F. Menzies, C. C. Easterbrook, M. J. Nolan, Bedford Pierce, G. W. Smith, E. Barton White.

This was agreed to.

ELECTION OF HONORARY AND ASSOCIATED MEMBERS.

On a ballot being taken, the following were unanimously elected Honorary Members of the Association:

Mr. Wm. C. Clifford Smith, *O.B.E.*, *F.R.I.B.A.*, *M.I.C.E.*, Mental Hospitals Engineer to the London County Council.

Dr. François Florentine Pactet, ancien chef de Clinique de la Faculté de Médecine de Paris; Médecin en chef de l'Asile de Villejuif.

Dr. Jacques Jean l'Hermite, ancien chef de Laboratoire de la Faculté de Médecine de Paris; Médecin de l'Hospice Paul Brousse.

A further ballot was taken, and the following were unanimously elected Corresponding Members of the Association:

Prof. Schuzo Kure, of Tokyo University.

Dr. Morowoka, of Kyushu University.

Dr. Sano, of Ghent.

All these gentlemen had been proposed by Dr. C. Hubert Bond, Dr. J. Chambers, Prof. G. M. Robertson, Lt.-Col. J. R. Lord, Sir F. W. Mott, and Major R. Worth.

APPOINTMENT OF AUDITORS.

Drs. C. F. F. McDowall and C. M. Tuke were unanimously re-appointed Auditors for the current year.

COMMITTEES.

The meeting further unanimously re-appointed the following Committees :

The Parliamentary Committee; the Educational Committee, with the names of Drs. R. R. Leeper, W. M. Buchanan, and John Brander added thereto; the Library Committee; the Research Committee; the *Handbook* Committee; and the Post-Graduate Committee.

With reference to the appointment of the *Handbook* Committee, the PRESIDENT invited Dr. Bedford Pierce to make a statement.

Dr. BEDFORD PIERCE: I am glad to say that the *Handbook* is actually in the hands of the printers. It has been a laborious business getting it ready, but the difficulties have been surmounted, and I may say the *Handbook* will be a great improvement on the old one. At the Council yesterday it was decided to authorise Dr. Chambers, the Treasurer, to undertake negotiations with the publishers of the *Handbook* with regard to the difficult questions of royalty, copyright, and so on.

THE REPORT OF THE COUNCIL.

The GENERAL SECRETARY (Major R. WORTH) read the Report of the Council for the year.

The number of members—ordinary, honorary, and corresponding—on December 31, 1921, as shown in the list of names published in the *Journal of Mental Science* for January, 1922, was 666, as compared with 673 on December 31, 1920.⁽¹⁾

Number of new members elected in 1921	50
Number of members restored in 1921	0
Removed according to Bye-law 17	31
Number of members resigned in 1921	21
Number of deaths in 1921	7
Transferred to hon. members	0

Members.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Ordinary . . .	696	695	679	644	632	627	626	626	640	631
Honorary . . .	35	34	34	34	32	33	32	26	24	25
Corresponding . . .	19	18	18	18	18	18	17	9	9	10
Total . . .	750	747	731	696	682	678	675	661	673	666

Since the last annual meeting there have been quarterly meetings held in London in November, February and May.

At the November meeting a sub-committee was formed consisting of the President, Secretary, Treasurer, Chairman, and Vice-Chairman of the Education Committee, to consider the relationship of the Association to the General Nursing Council in respect to the training and examination of mental nurses, with instructions to approach the General Nursing Council and Ministry of Health, and with full power to make any inquiries and to consider the situation that has arisen by the establishment of the General Nursing Council.

It was also decided that the President's address at the annual meeting in July should be sent to the Chairmen of Committees of Mental Hospitals in England and Wales.

A resolution was passed condemning the accusations made by Dr. Lomax at the end of his book and the statement regarding systematic cruelty on the part of male and female staffs in mental hospitals.

At the February meeting it was proposed to revise the list of institutions for the

(1) In the Register published Jan. 1922, "Aidan, etc.", on p. vii, should have been deleted.—(Eds.).

training of mental nurses and those nursing mental defectives, and Drs. Miller and Bedford Pierce were asked to bring forward a preliminary report.

At this meeting were received the resignations of Dr. Dawson as Co-Editor of the Journal and Dr. Steen as Chairman of the Library Committee.

It was also suggested at this meeting that a further letter be sent to the Minister of Health, stating that it was considered that mental nurses were not sufficiently represented on the Nursing Council; also that the Board of Control should be represented. This sub-committee was re-appointed on July 18th at the Council meeting.

The following papers were read during the year:

"The Medical Examination of Delinquents," by Dr. Hamblin Smith, Medical Officer, H.M. Prison, Birmingham.

"Forgetting," by Dr. H. Davies Jones, Ashhurst Hospital, Littlemore.

"The Use of Analysis in Diagnosis," by Dr. T. S. Good, of Ashhurst Hospital.

"The Genetic Origin of Dementia Praecox," by Sir F. W. Mott.

The Maudsley Lecture—"Some Aspects of Education in Relation to Mental Disorder"—was delivered by Sir Maurice Craig at the end of the May meeting.

Informal dinners have been held after each meeting in London, and they have been greatly enjoyed by those attending. It is hoped that in future more members will endeavour to attend these dinners.

With regard to the Maudsley Lecture, in future it was decided that the Lecturer should be nominated for the following three years.

It was decided that Lt.-Col. Edwin Goodall, C.B.E., M.D., B.S., F.R.C.P.Lond., should be nominated as President-elect.

It is hoped that by the end of the year the *Handbook for Mental Nurses* will be published.

The report was adopted.

MATTERS ARISING OUT OF THE COUNCIL MEETING.

THE PRESIDENT: I should now like to make mention of matters of interest arising out of yesterday's Council meeting. The Council had before them a resolution among other items from the Scottish Division recommending that matrons should take part in the examination in practical nursing of candidates for the Nursing Certificate, and this was dealt with by two resolutions by the Educational Committee which I will read out for your information: (1) That the Educational Committee approves of the chief male and female officers of the nursing staff, or their deputies, being present at and taking part in the examination in practical nursing of candidates for the Nursing Certificate. (2) That a sub-committee be appointed to consider whether it is desirable that one or more of the examiners for the written part of the examination be members of the nursing profession, and as to the best way in which the nursing profession can generally be represented on the examination for the Association's Nursing Certificate. The sub-committee suggested by the Educational Committee was: Prof. G. M. Robertson, Drs. D. K. Henderson, W. M. Buchanan, H. Wolseley-Lewis, J. R. Lord, Bedford Pierce, and J. F. Dixon.

There was mention of the very important Legal Committee which the Government have set up arising out of the general discussion going on in the Press with regard to the True case, and it will be remembered that in 1896 the Association did consider the question of criminal responsibility, and came to an agreement that it was impossible at that date to offer advice of utility. We think the circumstances have changed since then, and that now the Association may be able usefully to offer something. We do not know if it will be desired; but, if desired, we ought to be ready to make a statement on this matter, and so it was decided by the Council to form a special Committee to discuss and classify the medical aspects of the plea of insanity in criminal cases. We did not constitute the committee. We thought it was just one of those committees it takes time to consider names for, so that it was left to the President, the ex-President and the Chairman of the Parliamentary Committee to confer and select names.

MOTIONS INVOLVING EXPENDITURE OF FUNDS.

Other matters arising out of yesterday's Council were that the authority of the meeting is required for the grant of 50 guineas for the last Maudsley lecturer, and the usual sanction for the expenditure in connection with the Association's official guests at the Annual Dinner. These were agreed to.

Sir ROBERT ARMSTRONG-JONES: Has any time been fixed for this special committee to meet?

The PRESIDENT: No.

Sir ROBERT ARMSTRONG-JONES: Because it is a fairly urgent thing, and the committee wants to get to work as soon as possible, and it is important that this committee should be able to meet fairly early and discuss procedure.

The PRESIDENT: I entirely agree. The Council felt that although no time was fixed, any attempt to form the committee there and then would be rather a mistake, and we could do better by taking a little leisure—by which I do not mean delay. I am quite sure the urgency was fully realised.

REPORT OF THE TREASURER.

The PRESIDENT: To our great regret our Treasurer is not with us. He is unfortunately laid up and unable to be present, so that I will ask the General Secretary to read the Treasurer's Report.

Major R. WORTH then read the Treasurer's report:

The credit balance shown is due to the revenue derived from examination fees.

The disbursements made for the preparation of the *Handbook* in 1921 were £140 8s. 4d. If there had not been this unusual expenditure in 1921 the revenue account, independent of the amount received from examination fees, would show an adverse balance of £9—this on the assumption that all the members would pay their subscriptions. The cost of the *Journal* for 1922 will be less than it was in 1921. At the end of 1922 we should be in a position to estimate whether the increased rate of subscription provides an income which will cover the Association's expenditure, independently of the revenue derived from examination fees. A large amount of subscriptions has been written off. This action was deferred from year to year in the hope that members who had served in the war would, in consideration of being excused their subscription for their period of service, continue their membership by paying the subscriptions due since their return to civilian life. A certain number responded to this appeal. The disbursements made for the *Handbook* have been, as in 1920, included in the miscellaneous account. Attention is drawn to the small number of applications for grants from the Asylum Workers' Convalescent Funds in order that members of the Association may remind their staffs of its existence. There were only two grants made in 1921 of £3 each. These grants were met by a final payment of £2 4s. 2d. received from the original Treasurer, and interest on deposit—£3 15s. 10d.—a curious coincidence.

The report was adopted.

THE REPORT OF THE EDITORS.

Lt.-Col. J. R. LORD read the report of the Editors:

At the last Annual General Meeting a small committee, consisting of the President, the Treasurer, Lt.-Col. J. R. Lord (representing the co-editors), Dr. F. H. Edwards and Dr. C. F. F. McDowall, was appointed to report as to the cost of printing the *Journal*, with power to invite tenders. This Committee reported at the Quarterly Meeting held in London on February 23rd, 1922. Competitive prices for printing the *Journal* had been obtained from seven printing firms of repute, based upon a tender representing a typical issue of the *Journal*. Each firm was given the details of additional work which would need to be undertaken. The lowest price was submitted by the firm which had for many years printed the *Journal*, and the recommendation of the Committee that Messrs. Adlard & Son & West Newman, Ltd., should continue to print the *Journal* was adopted by the Meeting. The result was very comforting to the Editors, who have been in the past much indebted to the printers for their reliable and conscientious co-operation in the publication of the *Journal*.

At the last Annual Meeting the Editors were unfortunately unaware that this matter would be raised, and were not prepared with any facts or particulars to guide the meeting. This year, however, they have been careful to review the finances of the *Journal*.

The last pre-war year's issue (1914) was a volume of 721 pages. Owing to economic conditions generally the size of the *Journal* needed to be curtailed during the war, culminating in 1919 in an issue of 322 pages. In 1920 the flow of work in the world of psychiatry began to return to a more normal volume, and it was

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.—For the Year 1921.

REVENUE ACCOUNT—January 1st to December 31st, 1921.

BALANCE-SHEET—31st December, 1921.

Liabilities.		Assets.		1920.		1920.				
£	s.	d.	£	s.	d.	£	s.	d.		
300	0	5	To Journal Account, balance of	... 131	0	0	Examinations Account, balance of	... 7	8	0
130	0	0	Petty Disbursements Account, balance of	... 17	0	0	Meetings Account, balance of	... 17	0	0
130	0	0	Rent Account	29	1	0	Miscellaneous, balance of	32	1	7
10	13	9	" Library Account, Dividends	12	5	8	Gaskell	11	15	16
38	6	6	" Income Tax	11	15	0	Maudsley	14	4	0
40	0	0	Dividends	14	4	0	"	31	13	0
17	0	0	Income Tax	13	13	0	"	28	10	0
28	10	0	Dividends	11	17	1	"	61	17	1
11	17	4	Asylum Workers' Convalescent Fund	—	—	—	0.27	8	10	—
939	09	11								3480 10 5
										Balance at 1st January, 1921, ...
										1920, £ 230 18 0
										By Lloyds Bank;—Bankers
										General " Deposit Account,
										Asylum Workers' Convalescent Fund
										Sales Account, balance of
										Fees Account
										Subscriptions Account, balance of
										Stocks, value at this date
										New Zealand, 3½ per cent., 1940
										Do. do. (Hack Tuke Memorial)
										Victoria, 3½ per cent., 1924
										Do. 3 per cent., 1920-49
										Manchester Corporation, 3 per cent.
										New South Wales, 3½ per cent., 1910-50
										Midland Railway Preference, 2½ per cent.
										War Loan 5 per cent., 1926-37
										... Midland Railway Preference, 2½ per cent.

Add balance as per Revenue Account 445 9 0
" Increase in Valuation of Investments 334 10 5
	<u>4266 19 4</u>
<i>Deduct</i>	
Balance of Revenue Account 322 7 0
Subscriptions written off 322 7 0
Investments, depreciation of 3938 12 4
	<u>4266 19 4</u>
Less	
39 7 7	3480 19 5
44 2 0	<u>44220 19 5</u>
53 12 0	
	<u>44220 19 5</u>

(Signed) JAMES CHAMBERS, HON. TREASURER.
(Signed) BOLD COOPERLOW & CO.

COLIN M. B. WALLACE { Hon. Authors.
C. MOLESWORTH TUCKE { Hon. Authors.

absolutely necessary in the interest of the Association to embody more of it in the pages of the Journal. The Journal for that year rose to 526 pages, which at current prices was costly. A further return to normal has been effected during 1921, the size of the Journal increasing to 581 pages. There are still sections which cannot yet be properly undertaken, such as the review of mental hospital reports, but medico-legal notes are being resumed this year.

The cost of printing, reproduction of plates, etc., has been coming down since 1921, and it is hoped that financial considerations will permit very soon of the Journal resuming its pre-war size.

The financial details for 1921 are as follows. The statement can be taken as in general accurate :

Printing—

	£ s. d.	£ s. d.	£ s. d.
Basic cost	513 3 2		
Trade increases	408 13 6		
		<u>921 16 8</u>	
Reprints	30 6 8		
Wrappers and despatch	50 2 6		
Stationery and index, etc. . . .	12 14 4		
		<u>93 3 6</u>	
			1015 0 2

Credit—

Sale of Journal	185 12 9	
Advertisement	24 12 7	
Grant for plates	20 0 0	
Maudsley Grant	79 3 0	
		<u>309 8 4</u>

Cost of Journal to Association 705 11 10

It will thus be seen that each quarterly copy of the Journal issued during 1921 to a member cost about 5s. 6d.

The Editors are ever mindful of the fact that many members can only rarely participate in the meetings of the Association, and they think that if the membership of the Association is to be retained at its present level or increased the Journal of the Association must be of such a character that members feel repaid to a large extent for their annual subscription.

The Editors regret that Lt.-Col. W. R. Dawson, *O.B.E.*, found it necessary to resign his position as Co-Editor. He had rendered valuable assistance to the Journal for many years, which embraced a period long before he was officially connected with it.

They would also like to draw the attention of the Association to the voluntary work done by reviewers and epitomisers. No less than 36 books were reviewed and 100 articles epitomised during 1921. This represents an amount of reading and close study which the Editors feel sure the members of the Association are most grateful for. (Applause.)

The PRESIDENT: It is a very comprehensive report, and very satisfactory, and I take it it is received and adopted. (Agreed.)

REPORT OF THE AUDITORS.

Dr. COLIN McDOWALL read this report:

We have this day examined all the vouchers and books of the Association, and beg to report that the Balance-Sheet and Revenue Account present accurately the financial position of the Association.

Dated this 11th day of July, 1922.

COLIN McDOWALL
C. MOLESWORTH TUKE. } Hon. Auditors.

Received.

REPORT OF THE EDUCATIONAL COMMITTEE.

Dr. A. W. DANIEL: The Educational Committee beg to submit the following report:

The meetings held have numbered four, and the average attendance has been

twenty. During the year one case of collusion at the examination for the Nurses' Certificate was dealt with, and two cases of misconduct, in one of which no action was taken and in the other the name of the offending person was ordered to be removed from the Register.

The following institution was recognised for the training of mental nurses—Rempton; and for the training of those nursing mental defectives—Monyhull, and The Manor, Epsom.

The results for the year of the examinations for the Nursing Certificate are not yet available. The number of entrants for these examinations is as follows: Preliminary, 3,888; Final, 1,939. This compares with Preliminary 4,228; Final 1,382 for the previous twelve months.

For the Bronze Medal two essays were received, but these have not yet been adjudicated. There were three candidates for the Certificate in Psychological Medicine, and two of these were successful.

Two candidates presented themselves for the Gaskell Prize, and both failed to reach the required standard.

The PRESIDENT: You have heard that report, which is quite an interesting one and full of the year's good work. May I take it it is received and adopted? (Agreed.)

REPORT OF THE PARLIAMENTARY COMMITTEE.

Dr. R. H. COLE read this report:

Your Parliamentary Committee has held four meetings during the past year. The Asylums Officers Superannuation Act has been considered with regard to proposed amendments, but it has not been possible to proceed further with these at present.

The Supplemental Register for Mental Nurses under the Nurses' Registration Act having been established, your Committee has advised the Council to take steps to encourage mental nurses to avail themselves of registration.

Your Committee has continued to urge the need of legislation as regards England and Wales for patients suffering from mental disorders in their early stages. It is hoped that a Bill will be introduced into Parliament this session. In connection therewith your Committee has carefully considered what Government Department should exercise supervision of such a measure, and it has expressed its view that the supervising body should be the Board of Control.

Your Committee has brought before your Council the matter of reports and certificates, which are increasingly demanded from mental hospital medical officers concerning service patients and insured patients.

I beg to move the adoption of this report.

Prof. ERNEST W. WHITE: Arising out of this report I beg to move the following: "That in the opinion of this Annual Meeting of the Medico-Psychological Association of Great Britain and Ireland, it is very desirable in the interests of the general community that all mental nursing homes and private houses receiving mental patients for care and treatment should be registered and periodically inspected officially." We all know that a Bill which was slightly alluded to is coming very quickly. We all know the abuses in the past, which I had the pleasure of showing up when I was President in 1903—all the abuses then existing in some nursing homes. We all know this Bill will tend very largely to the ever-increasing treatment of patients in private care in single houses, and we all know the necessity therefore that the public at large and the general community should feel that these houses are properly administered. Now, my proposition studiously avoids any intrusion on the privacy of the patient. The supervision is merely that the house should be properly adapted and suitably administered. There is no interference with the privacy of the patient. But it is more than ever essential that these houses should be properly supervised, so that so far as possible there should be no chance of any harshness of treatment or inadequacy of administration, and it is with that object, seeing that this Bill will shortly be introduced into the House, that I propose this motion to-day. I honestly believe it will have the acceptance of you all. I believe, further, that it will not be opposed by the general public. If I had embodied in it the general nursing homes I believe we should have had great opposition from a certain section of the medical profession, but as I confine it strictly to our own section I do not think we ought to have that opposition, and therefore I feel a certain amount of confidence in proposing this to you to-day.

The PRESIDENT: This is a motion arising out of the Parliamentary Report. Does anybody second it?

Lt.-Col. J. R. LORD: Is this matter one clearly arising out of the Parliamentary Committee's report? If it is a new motion should it not have been on the agenda?

The PRESIDENT: I am taking this as a motion arising out of the report of the Parliamentary Committee.

Dr. J. G. SOUTAR: I fail to see what part of the Parliamentary Committee's report this arises out of.

Lt.-Col. J. R. LORD: We should like to be quite clear about it. I have no doubt many of us are in sympathy with the resolution, but we would like to be in order in discussing it.

The PRESIDENT: There being no seconder I suggest that we pass on. It does not mean that there is any hostility to a sentiment which must appeal to many.

The report was then agreed to.

REPORT OF THE LIBRARY COMMITTEE.

Dr. COLIN McDOWALL read this report:

During the 1921-22 session 30 volumes in all were issued from the Lending Library for the use of members, while during the previous year 35 volumes were issued. The Reference Library has been used more largely, but no record is kept of the number of books referred to. No new books have been purchased during the last two years. There has been a charge of threepence made for postage for books which are sent out from the Library. This charge does not cover the actual cost of postage, and perhaps would be better discontinued.

Medical periodicals have been circulated among the members who have asked to be placed on the list. The following is a list of the periodicals: *American Journal of Insanity*, *Journal of Neurology and Psycho-Pathology*, *L'Encephale*, *International Journal of Psycho-Analysis*, and *Journal of Abnormal Psychology*. This list appears to be very limited, and will be added to should any member express in writing a desire to have any particular journal circulated.

Dr. COLIN McDOWALL, in moving the adoption of the report, said:

I have a letter from Dr. Rayner, which he wrote to me when I sent him the Report. He writes saying: "I should like to add that this list of periodicals is very limited, and that in the interests of scientific work in mental hospitals it is desirable that all foreign and other journals should be available for references to the medical officers. The committees of mental hospitals are responsible for the encouragement of such scientific work, and it is suggested that they should be appealed to by the Medico-Psychological Association to aid in the work of supplying this need. I would further suggest that in moving the adoption of the report you move that a small committee be appointed to carry out this appeal in the manner best calculated to ensure support. I would do so if I could attend." Then he says rather pathetically, "I made a similar suggestion many years ago, but things were very different then. I am sure that now one could get the support of the Board of Control and Dr. Bond."

I beg to move the adoption of the report.

Dr. W. F. MENZIES: There are no new books bought. You remember last year you ruled, or I ruled, that it was out of order, and it was carried by the Chairman of the Library Committee at that meeting, against the wish of the Council, that a grant should be made. Well, that was a very severe thing to do against the wish of the Council; still, it was done, and yet apparently the grant has not been expended. May I ask why?

Dr. COLIN McDOWALL: I can only say no money, I understand, was available, and I made an application this year to the Secretary of this Association for money, and I am afraid I have not had an answer to that letter. I applied for £20. I am quite sure we will get this money, and the Association can rest assured books will be purchased, but it seems rather sad to think that only thirty books were issued last year. This 3d. a time now, I hope, will be cut off, and that will perhaps encourage members to apply without the fear that they will be charged something in addition.

Dr. W. F. MENZIES: Last year's grant has expired.

Major R. WORTH: Might I say all applications received by the Secretary are promptly sent on to the Treasurer.

Dr. W. F. MENZIES: Are we to understand that the Library Committee can get this £20 now?

The PRESIDENT: I was going to ask. I think the Association will respond to this appeal on the part of the Library Committee. There is a vein of pessimism running through these remarks, but I do not think it is very sound, because although not many of these books are asked for through the post I do notice a good many make use of the Library. It is very rarely I go in there casually without finding someone making use of it. When I was a member of the Committee I used to say that the members of the Association did not seem to know the books that were there. Some of them are quite of historical interest, which I do not think they would get easily elsewhere, and if there was an accessible catalogue, the demand I think would be very much greater. I do not think it is going to die a natural death. I would be very sorry, and I am going to put it to the meeting that we grant this £20 asked for, and we shall hear this time next year how it has been expended. (Agreed.)

Dr. BEDFORD PIERCE: With regard to the other suggestion which came from Dr. Rayner, I hope it won't be lost sight of. In making inquiries I find it is not very common for our public asylums to have a library at hand for the use of medical officers, and yet it seems to me to be a very small expense to keep it going, and I think if it was put before the mental hospital committees it would be favourably considered. My Committee were always willing to buy new books for the benefit of assistant medical officers, and there is now quite a respectable library, and I think that should be general in our institutions. The annual expense is very trifling if you only purchase new books as they come out, and I hope Dr. Rayner's suggestion will be accepted.

The PRESIDENT: May I take it this is referred to the Council as suggested? (Agreed.)

THE SUB-COMMITTEE ON POST-GRADUATE STUDY.

The PRESIDENT: With regard to the Post-Graduate Committee, of which I am Chairman and Lt.-Col. Lord is Secretary, we would have liked to report further, and the fact that there is no report is entirely my fault. The Sub-Committee has had several meetings, but my time has been so completely filled that I have not been able to co-operate in the production of a report, but with the cessation of the occupancy of this Chair I hope an easier time in one or two directions is in store for me.

DATES OF THE ANNUAL AND QUARTERLY MEETINGS.

The quarterly meetings for the ensuing year were agreed to as follows: November 23rd, 1922, February 22nd, 1923, May 24th, 1923. The next annual meeting would probably be held in London.

THE MAUDSLEY LECTURES.

The PRESIDENT: It has been suggested, and I think it is generally agreed, as regards the Maudsley Lectures, that it will be better for the sake of both lecture and lecturer that a longer notice should be given than hitherto, and that appointments must be made as far as possible for three years ahead. The three years' notice would begin next year. Subject to their respective consents being obtained, the next Maudsley lecturer will be Dr. Clark, Professor of Psychiatry in the University of Toronto, then Dr. Carswell in 1924, and Dr. Percy Smith in 1925. With regard to Dr. Clark, of Toronto, seeing that he has been given but little time in which to decide whether he will accept the invitation or not, it has been suggested that he be offered an option of two dates, namely, May, 1923, or the next Annual Meeting.

ELECTION OF CANDIDATES AS ORDINARY MEMBERS.

The PRESIDENT appointed Dr. G. Douglas McRae and Dr. F. H. Edwards as scrutineers for the ballot.

The candidates were all elected as follows:

R. MARY BARCLAY, M.A., M.B., Dipl. Psych. Edin., 15, Rankeillor Street, Edinburgh.

Proposed by Drs. G. M. Robertson, W. McAlister, and E. Connell.

GEORGE GIBSON, D.S.O., M.D., F.R.C.P.Edin., Deputy Commissioner, General Board of Control, Scotland, 23, Cluny Terrace, Edinburgh.

Proposed by Drs. Hamilton C. Marr, James P. Sturrock, and W. M. Buchanan.

ALBERT WILLIAM GREGORSON, M.D., Ch.B., F.R.F.P. & S.Glasg., Assistant Medical Superintendent and Physician, North Middlesex Hospital, Silver Street, Upper Edmonton, N. 18.

Proposed by Drs. E. Laval, H. Yellowlees, and R. Worth.

DOUGLAS CHALMERS WATSON, M.D., F.R.C.P.Edin., Physician, Royal Infirmary, Edinburgh; 11, Walker Street, Edinburgh.

Proposed by Drs. G. M. Robertson, C. H. Bond, and R. Worth.

RALPH ATHELSTANE NOBLE, M.B., Ch.M.Sydney, D.P.M.Camb., Medical Superintendent, Red Cross Hospitals for Nervous Diseases, N.S.W., Australia; Neurologist, Ministry of Pensions, England; c/o Commonwealth Bank of Australia, 36, New Broad Street, London, E.C.

Proposed by Drs. C. H. Bond, J. Macpherson, and T. S. Good.

SIR FREDERICK WILLIS, K.B.E., C.B.

At this stage the President intimated the names of several members who had written regarding their inability to attend the Annual Meeting, and on the motion of Sir Robert Armstrong-Jones a message of sympathy was sent to Sir Frederick Willis, the Chairman of the Board of Control for England and Wales, who was unable to be present owing to his having undergone a serious operation.

DEMONSTRATION BY DR. CHALMERS WATSON.

The PRESIDENT: You will notice on Friday there is a paper to be read by Dr. Chalmers Watson, and in connection with his paper he has gone to very great trouble in arranging in his ward in the Royal Infirmary a demonstration which you are invited to visit any day this week. I am sure you will find it of the greatest interest, and the opportunity should not be missed. I think the lesson to be learned from it is the value and urgent call there is now for the constant use of a clinical laboratory in connection with every-day clinical medicine.

PAPER.

"The Out-patient Treatment of Early Mental Disorder. The Neurological Clinic, and some of its Functions," by Dr. A. NINIAN BRUCE (see p. 385).

The PRESIDENT: I may say we are all very much obliged to Dr. Bruce for the extremely interesting, practical and important paper he has just read. It touches on so many items in which I have personally much at heart that it is with considerable self-restraint that I am going to sit down and suggest that some others should at once commence the discussion. There are a great many here to whom many of his points appeal in their work, present and past.

Sir FREDERICK MORT: I have listened to Dr. Bruce's paper with great interest. It appeals to me very much, especially his view that neurology and psychiatry are inseparable, and for that reason in connection with the Diploma of Psychological Medicine we require all persons to pass in neurology, and I am quite certain the medical officers in mental hospitals have greatly benefited by this teaching they have had. I was particularly interested in Dr. Bruce's statement of the unity of the psycho-neuroses and the psychoses, because I think it is very difficult to draw a hard and fast line between them. With regard to the psychoses, I have myself made some observations which seem to show they are one group. You have women coming into the mental hospital, and you do not know whether they will get well and be discharged, or whether they will be discharged and come in again, or whether they will remain and develop dementia and never leave the mental hospital. I have cases in which they were diagnosed as confusional insanity where they have come in again and remained as dementia praecox cases. These cases died later in life, and one finds the same changes in the brains of these cases as in the cases which never recovered. With regard to dementia praecox in males, I have found the same there. I have found marked regressive atrophy of the testicles, so that I think there is the material at hand from which to associate all these cases in one great group. With regard to the state of the

ovaries, you will find the same regressive atrophy in cases of the psychoses, and general inadequacy at the highest cerebral levels. I should like to say I think there is a material reason why this highest level should be liable to degenerative changes. If you regard the anatomical development of this highest level which forms the great bulk of the nervous system you will see it is developed from very few of the protomeric cells of the neural tube. You may have an arrest in development, or you may have a breaking down in adolescence from psychological or pathological stress. I have numbers of cases in which an imbecile breaks down, in which you find an arrest of development of the supragranular pyramids, and then the acute change in all the cortical layers. Then again in cases which were admitted for confusional insanity and cases of dementia *præcox* you find the same degenerative changes, so that I think we must regard this disease rather as on a material basis, and I am sure myself that we do not know enough yet about the influence of the endocrine glands, but Dr. Kojima investigated 110 cases I made post-mortems on, and very carefully weighed the endocrine glands, and when one compares that examination with what one finds in hospital cases you see how frequently the endocrine glands show abnormality. On those lines I think we find important evidence to explain some of the mental conditions we know do arise. I entirely agree with Dr. Bruce with regard to the out-patient treatment of a large number of cases, and if it is possible to keep these clinics separate from the mental hospitals, because by that means you will get them early. You will not get them early if they think these clinics are half-way houses to asylums. On these grounds I think it is very desirable in a city or town where there is a mental hospital if they established a clinic it should be away from the mental hospital if possible, but have an expert from the latter to see the cases. (Applause.)

Dr. T. C. MACKENZIE : Those of us who were Edinburgh trained under Sir Thomas Clouston twenty or twenty-five years ago recognise in what Dr. Bruce has said to-day an echo of what our great teacher emphasised so constantly and persistently—early treatment of incipient mental disease, removal of the stigma, and so on. Another point is that one feels that there is an immense amount of hypothesis yet underlying the work which Dr. Bruce has covered in his paper this morning. It is not even theory, and I think Sir Frederick Mott has said what many of us feel, that we are on more sure ground in approaching the subject from the side of physiology and pathology.

Dr. W. R. DAWSON : I have been much interested in this paper, but I think on many points the reader is in the position of preaching to the converted. We are all in favour of treatment outside a mental hospital as long as it is safe to do it. As regards the closer association between psychiatry and neurology I have long thought this a very important subject. I remember in an address delivered so long ago as 1899 urging strongly there should be a *rapprochement* between them. I am perfectly certain that the more the two coalesce; the more the psychiatrist assists the neurologist, and the more the neurologist understands the view of the psychiatrist; the better will be the results for the patients of both. I was President of the Special Medical Board for almost the first two years of its existence in Dublin, and I can confirm what Dr. Bruce said about the difficulty in dealing with pronounced nervous cases or mild mental cases because there were not the same facilities in the way of neurasthenic hospitals as since the war. I hope during the next few years to see the development of the establishment of these outside clinics. I should like to emphasise what Dr. Bruce and Sir Frederick Mott have said, that although these clinics should be outside the mental hospitals, they should have a man with mental hospital experience connected with them always. The danger is that men who have had no real experience except what they have picked up in private practice will be appointed to posts like these. I do not want to disparage such men, but I think the result of taking a man who has had no real training in the treatment of mental disease will not be good for the clinic or for the patient.

Dr. J. G. SOUTAR : It is true, as has been stated, that much of the nature of pure hypothesis is associated with the conception of the psychic origin of the disabilities which we are discussing. I do not think that this criticism has validity to discourage investigation on psychic lines. So far physiologists and pathologists have failed to explain phenomena observed in many instances. In a large number of cases definite degeneration occurs. In these, treatment on psychic lines can have no influence except on coincident secondary functional manifestations. There are, however, many cases which in their symptoms seem to be identical with

those in which definite alterations in structure have been ascertained, yet they recover, and often quickly, under "psychic" treatment. We are groping after the understanding of this. Hence the necessity for tentative hypotheses to give direction to investigation.

Dr. J. F. DIXON: I have just one remark to make, and that is with regard to the training of the future specialists at the outdoor clinics. I think if I am correct Dr. Bruce envisaged a time when the asylums will be filled with chronic and dangerous lunatics, and there will be none of any other type there. I think the medical superintendent of such an institution will hardly be equipped from his experience and training to undertake the successful treatment of patients in the out-patient department, because he will then have had no experience of recent cases.

Dr. G. DOUGLAS MCRAE: I agree with Dr. Dixon. The public are already very strongly prejudiced against asylums and asylum treatment. I think you, Mr. President, last year drew attention to that very forcibly, and I think the point should not be lost sight of. We have been struggling for years to make our asylums hospitals. There is scarcely an asylum that has not got a thoroughly equipped hospital for acute cases connected with it. Many of the cases never go in among the chronic and supposed dangerous lunatics. They pass through the hospital department, and are treated by men who understand the disease as far as any hypothesis can enable them to do so. I strongly deprecate the suggestion that the asylum of the future is going to be filled and packed with chronic lunatics. I deprecate it because the vast majority of the asylum patients are by no means dangerous. A great many of them are simply mildly demented, and unable to earn their living and conduct themselves in ordinary society. Their weakness is not such a terrible condition that they deserve the stigma—public ignorance is the stigma—and I think we ought to stand up more firmly for our asylums and get the public to understand what work we really do. I do not think we ought to leave the public under the impression that the mental specialist is a man who deals with chronic dangerous lunatics. I say if you have an individual who is so dangerous he ought to be in a state asylum. The ordinary asylum ought to be a hospital for the care of mental cases, not a place for incarcerating people. Immediately a patient becomes dangerous we ought to pass him over to the Government as dangerous, and leave ourselves free as medical men to look after the other patients. I object to the asylum being selected as a place where a lot of dangerous lunatics are to be incarcerated.

Dr. H. YELLOWLEES: In connection with what Dr. McRae has just said, may I state one thought that has occurred to me, namely, is it not extraordinary that the old fallacy that a dangerous case has any connection with a chronic case has once more been allowed to go unchallenged altogether? In many instances it is the recoverable cases that are frequently the most dangerous.

Dr. DONALD ROSS: At the risk of being discourteous, I should like to express my disappointment with the title Dr. Bruce has chosen for his paper.⁽¹⁾ While the substance of his paper was largely taken up with teaching us a good deal of what really we as psychiatrists know, I think the general public as well as anybody else wants to have it pointed out to them that we do know something about these things. A patient of mine who recovered said that the greatest stumbling-block in the welfare of mental cases was the general practitioner.

Dr. T. S. GOOD: I happened to come from Oxford, and there the public do not believe that the mental doctor is a man to be left out altogether. At one time people had fear of witchcraft, they had fear of being shut up in the mental hospital, but nowadays things have changed. It is up to us to educate the people by showing we are not people who want to shut them up. As regards treatment, it is only by investigating both the psychic and the physical side of our cases that we can do any good.

LUNCHEON.

By the kindness of the Chairman, Sir James Adam, O.B.E., and the managers of the Royal Hospital, Morningside, members of the Association and their ladies were entertained to lunch at the Royal Arch Halls, Edinburgh. Sir James Adam presided. He was supported by other managers, members of the General Board of Control for Scotland, and others. This hospitality was much appreciated by the numerous guests.

⁽¹⁾ Original title of paper Dr. Bruce read was "The Out and the Inside Treatment of Early Cases of Mental Disorder."—Eds.

AFTERNOON SESSION.—JULY 19.

THANKS TO THE RETIRING PRESIDENT AND OFFICERS.

Dr. T. C. MACKENZIE: I feel it a very great honour, and at the same time the responsibility has been laid upon me somewhat suddenly and very unexpectedly, to be asked to propose a vote of thanks to the Officers and Council of the Association. I rise to do so with feelings of considerable embarrassment, and I hope members will not expect too much of me in the performance of this duty. We all are aware of the amount of work that is entailed by occupancy of the Chair of this Association, and I think we are equally agreed upon the manner in which Dr. C. Hubert Bond has discharged these duties and responsibilities. (Applause.) He has occupied the Chair at a time when the whole of lunacy administration, in which he is, in his official position, particularly interested, including psychological medicine and National mental hygiene, has been raised and canvassed, and the Association has to be congratulated that in such a year Dr. Bond has been its official head. (Applause.)

I have also to express our thanks to our Treasurer, Dr. Chambers, who is unable on account of illness to be present this afternoon. I feel again my unfitness to speak of so devoted and revered a member of our Association as Dr. Chambers. I have met him on different occasions, and I think it is recognised that in Dr. Chambers the Association possesses not only an official in whom it can very securely trust its purse and financial matters, but a member of very special gifts and charming manner. We all deeply regret his absence this afternoon.

As to our General Secretary, Major R. Worth, I have not been a Divisional Secretary, but I have some knowledge of what the work of a Divisional Secretary must be; but what it must be to be General Secretary of the Medico-Psychological Association of Great Britain and Ireland—and I may say particularly in the present circumstances of Great Britain and Ireland—none of us perhaps can estimate, but we do assure Major Worth that we appreciate very cordially the energy and capacity, the tact and courtesy and all the other desirable qualities that he has exhibited. (Applause.)

I have also to refer to the debt we owe to our Registrar. Dr. Miller, unfortunately, for reasons of illness in his own family, is also unable to be present at this Annual Meeting. Well, Sir, I speak with some sense of what Dr. Miller may be feeling with regard to one important department of the work of the Association, and I imagine, that metaphorically speaking, he is rather tearing his hair over the work of obtaining results for the recent Nursing Examination. But that is only one point of the work and the worries that the Registrar of this Association has to carry through. Dr. Miller has been a long-established holder of his present office, so that it is quite unnecessary for me, I am sure, to repeat what has been said on many previous occasions of the debt which the Association owes to its Registrar. (Applause.)

There are also the Editors of the Journal. Every department of the work of the Association is onerous, exacting and responsible, and we have already had before us this morning the report of the Editors of the Journal, from which the Association understands the difficulties that have arisen of late, and also how they are overcoming them. I think the Association owes its very hearty thanks to the Editors of the Journal. (Applause.)

I should like to include in the vote of thanks—I cannot pretend to go through all the officials of the Association, and all those occasional members who act in an occasional official capacity, so to speak—but I should not like to sit down without reminding you of our indebtedness to the Chairmen and Secretaries—more particularly the Secretaries, as our Chairmen will admit—of the Parliamentary Committee and of the Educational Committee. I should like the Association to know and to understand that Dr. G. W. Smith, the Secretary of the Handbook Committee, is a man who has done a vast amount of very hard and exacting work for the Association, and I think the Association ought to include him very heartily in its votes of thanks to-day. (Applause.)

There are others to whom I might refer. I might mention the Examiners. Their work has become very onerous. It is no joke to examine so many thousands of examination papers. It means a great deal of work to go through them conscientiously and correct them.

With these remarks I hope I have been sufficiently inclusive. I may have made some omission, and if so I express my apology and regret for it, but I have very much pleasure in asking the Association to accord its very genuine and very hearty thanks to all the Officers and the Council of the Association. (Applause.)

Dr. J. G. SOUTAR: When I followed Dr. Mackenzie this morning in the discussion there was just a shade of difference of opinion between us, but there is no difference between us on this subject, and I have pleasure in seconding the vote of thanks he has proposed in that delicate way of which he is a master, in a speech which has, I hope, let the different gentlemen referred to realise how highly we appreciate their services. I can only say they are carrying on the work of the Association in the spirit of a past of which we have reason to be proud of.

The vote was carried by acclamation.

The PRESIDENT: My penultimate duty in the chair is to return thanks on behalf of myself and all the officers and members of the Council of the Association for this vote of thanks for our labours, and the way you have received it. With regard to the officers there is no one in a better position than myself to endorse every word both Dr. Mackenzie and Dr. Soutar have said, and I take the opportunity gladly of expressing my own great debt of obligation to them. My position as President would have been absolutely impossible without their ever-ready help and the long-tried advice of the Council. It is not for me to add anything to what has been said by Dr. Mackenzie and Dr. Soutar, but as one behind the scenes you will pardon me if I do just accentuate the remarks in one direction, and that is to emphasise anything that can be taken to refer to Dr. Buchanan, the Secretary of the Scottish Division. We have started evidently on what is going to be an extraordinarily successful meeting, and I know that your new President and the General Secretary will endorse everything I might go on to say of how much we are already, and will be still further, indebted to Dr. Buchanan for the success of this meeting. These are nearly the last words I am entitled to address to you as President, and I will make them brief. You all know that I entered on my duties with very great diffidence, but that was banished by the fact that I very quickly found that I was among both new and old friends, and that there seems to be something more than a feeling of sympathy between us. Papers and discussions are a *sine qua non* to a Society that pretends to be scientific, and I take this opportunity of thanking most cordially all those—and they are many—who have contributed papers for their help in my year of office. The more discussions we have the better, and among future ones I hope the Association may ere long, if I may venture to say so, take up the question as to whether we are satisfied with our nomenclature on mental disorders, and whether it has not outlived itself. But after all is said and done, I believe the chief value of these meetings is that we get to know each other's difficulties and our ties of fellowship are constantly being strengthened. I want to give one word of apology and regret that I have not attended the Divisional Meetings. It was my firm intention to attend every one, or at least one in every Division. I have only been successful on one occasion; the will was there, but the exigencies of other work made it impossible. Finally, mention of these Divisional Meetings prompts me to say that during my year I have been greatly impressed by the growing importance of our Association: whether it can ever aspire to an addition to its name I do not know. The increasing attendance of members and others resident in the Dominions and other parts of the Empire is a source of both satisfaction and strength to us and, without elaboration of my thoughts on the matter, it does seem to me that the desirability of approaching those members with a view to forming Overseas Divisions might well be considered; including minor changes in the constitution of our Association whereby, from time to time, we might find our President outside the British Isles. (Applause.)

INSTALLATION OF THE NEW PRESIDENT.

The PRESIDENT: Professor Robertson, my final duty is, to my mind, an extraordinary inversion of the proprieties. Though an Englishman, cannot I yet say that I was brought up in this city, at the feet of Gamaliel—you being my Gamaliel? So that if Fate had it in mind that there was to be this induction ceremony between us it ought to have been the other way about. The explanation of that no doubt is simple and relates merely to the rotation of the occupancy of the Chair, whose orbit circumstances occasionally force to be erratic. It has

given me, however, one of the greatest pleasures of my life; namely, to be President of the Association, and to come to my old University city and find myself in the position of inducting my old colleague and the Professor of Psychiatry into this Chair. In divesting myself of this badge and investing you with it, may I wish you most heartily a happy year of office. It cannot be happier than mine. That it may be equally so, and that is the best wish I can give you. (Applause.)

Prof. G. M. Robertson (the new President) thereupon took the chair.

The PRESIDENT: Dr. Bond, Ladies and Gentlemen,—I have to express my most grateful thanks to the Members of the Medico-Psychological Association for the honour they have done me in electing me their President, and I have also to thank my old friend and colleague—I will not say pupil—Dr. Bond, for the very kind remark which he has made regarding myself when installing me as his successor. I may say it has been an additional pleasure to me to have succeeded my old friend Dr. Bond. Dr. Bond, however, has set so high a standard of efficiency as President of the Association that I feel it is almost hopeless to aspire to follow in his footsteps. I will do my best, however, and I know I can depend upon the officials of the Association, as he has done during his term of office, including the General Secretary, Treasurer, Registrar, the Editors, and the Divisional Secretaries, to help me as they ever helped former occupants of the presidential chair. I wish to take the opportunity of saying how exceedingly sorry I am—and I am sure all of you are—that Dr. Chambers, our revered Treasurer, and Dr. Miller, our Registrar, are unable to be present to-day. Without these two officials—I might almost say permanent officials—the meeting does not seem to be quite itself. Now, the first duty of the President is to deliver his address, and the subject I have selected is a simple one, in which, however, I have been deeply interested, and I hope that it may help the public, who are really the audience to which I speak, and create in their minds an accurate picture of the modern mental hospital, its work and its ideals. The title I have selected is that of "The Hospitalisation of the Scottish Asylum System."

The President then delivered his address, which was listened to with the greatest interest (see p. 321). Many passages were heartily applauded, and evidently voiced the sentiments of the audience generally.

Sir ROBERT ARMSTRONG-JONES: I rise with feelings of very great pleasure at being honoured to move the resolution of thanks. The address was all too short. The first key-note of the address was hospitalisation, and the second the gospel of human kindness—that is to say, skill in treating a disease in order to cut it short, and especially kindness, forbearance and sympathy in dealing with this illness, an illness which we all know is the greatest terror to the human race, and equally so both to the rich and to the poor. I would like to say that this address strikes me as a new departure. It preaches the quality of the heart rather than the quality of the head. It also raises to a very high level the value and excellence of administrative capacity by which our patients benefit. We wanted an address of this kind, and I have felt it is opportune. There is nobody who has felt the calumnies and odious assertions made with regard to the mental hospitals more than myself. They have also taken hold of the public mind, and this address, I venture to say, will go further than any address I have ever heard in reassuring the layman's mind. It is an address that ought to have been delivered earlier, but we have it now. I have long watched the upward and distinguished career of Prof. George Robertson, and I have watched him from Perth to Stirling, and Stirling to Edinburgh, where he is now the able successor of Sir Thomas Clouston. Prof. Robertson's great energy and great capacity for management augur well for this Association. May he have a very successful year, as I know he will have a very arduous one. I have been asked to move this resolution because I am one of his oldest friends. I think I am the oldest member present of this Association, and I was your Honorary General Secretary for nearly ten years. I have the greatest pleasure in asking you to pass a very cordial and hearty vote of thanks for the excellent address to which we have listened. (Applause.)

Dr. W. R. DAWSON: I have very much pleasure in seconding the vote of thanks proposed by Sir Robert Armstrong-Jones. I had the less hesitation in doing so since Sir Robert Armstrong-Jones was to precede me, and I knew from my previous acquaintance with his powers that his proposal of the vote of thanks would leave very little responsibility on my shoulders. Nevertheless even if he had left more it would have given me great pleasure to undertake it for various reasons, not

only because Prof. Robertson is an old friend, but because of the great position he holds in the School of Edinburgh and at Morningside Royal Hospital. I consider it one of the greatest honours of my life to have been formerly, if only for a short time, a member of the staff of the latter institution, and to have received my first training in psychiatry from Sir Thomas Clouston. We are not supposed to discuss the address, but there is just one point I should like to make, and it is that this address, which gives so excellent an account of the progress and advance of psychiatry in Scotland, shows that this progress has come entirely from within. It has not come from officious criticism on the part of busybodies who think they know better than the men who have studied the subject for a lifetime. It has come from the Committees, the Superintendents and others associated with the asylums themselves, all of whom have striven to improve their specialty and to do their best for the patients placed under their charge, and I entirely agree with what Sir Robert Armstrong-Jones has said, that the more wide publicity the address gets the better it will be not only for those who are associated with the asylums but for the public themselves and the patients and their friends. I have no doubt Prof. Robertson will have a successful year of office. He has begun well, and I have no doubt he will continue better. For these reasons it gives me the greatest possible pleasure to second the vote of thanks, which I am sure will be passed with acclamation.

The motion was accepted with great enthusiasm.

The PRESIDENT : I have to thank you all for the kind way in which you have voted me this thanks for the address which I have just delivered to you, and it has been particularly pleasing to me that this vote of thanks should have been proposed by Sir Robert Armstrong-Jones from the other side of the Border, and by Dr. Dawson across the Channel. I trust that this address of mine may be of some service in calming the agitation of certain people—an artificial and improperly stimulated anxiety—but I feel that the general public as a matter of fact does not take the real interest in the care of the insane or the mentally afflicted that it ought to take. I think myself that they really are on the whole somewhat apathetic, and all they are interested in at the present time is anything in the way of a scandal, or criticism. The real interest in the care of the insane I do not think exists, therefore it behoves us all the more to do a certain amount of education of the public. I think more should be done on these lines. After all, the strength of any movement for the care of the mentally afflicted must come from the general public. I was very pleased indeed by the reference Dr. Dawson made to the fact that most of these reforms had come from the mental hospitals and from those in charge of them. I feel we have been most unjustly dealt with, and had we not had the interested and sympathetic help of our Committees, influenced no doubt by the medical officers charged with the care of the insane, we would have been much further back than we are at the present time. I do not think there is any country in the world in which the insane as a whole are treated so well, and certainly I know of no country in which they are treated with more consideration and kindness than in Great Britain. I have to thank you all for the way in which you have listened patiently to my address. (Applause.)

Tea was then served and the meeting adjourned until the following day.

THE PRESIDENT-ELECT'S GARDEN PARTY.

On the previous afternoon (Tuesday, July 18) Prof. G. M. Robertson (President-Elect) and Mrs. Norman Ritchie held a reception at Tipperlinn House, Morningside, to which members and their ladies were invited. There were many guests, and music, tea, tennis, clock golf and warm sunny weather all went to make the occasion an enjoyable one. It was a happy reunion of members drawn from all parts of the Kingdom, and a pleasant prologue to the more serious business of the morrow.

THE DINNER, JULY 19, 1922.

The Annual Dinner was held in the Hall of the Royal College of Physicians, Edinburgh. The President (Prof. G. M. Robertson) presided over a company numbering about 150. The guests included the Rt. Hon. Lord Provost Hutchison and Mrs. Hutchison, Principal Sir Alfred Ewing and Lady Ewing, Sir George Paul, Sir Arthur Rose and Lady Rose, Sir Robert Philip, Sir David Wallace and Lady Wallace, Mr. J. G. Jameson, M.P., Sir John Findlay, Mr. R. Scott Moncrieff,

the Rev. Dr. Fisher, Prof. Meakins, Sir James Adam and Lady Adam, and others. There were also present Prof. Roger, Dean of the Faculty of Medicine of Paris, and three of his colleagues from Paris and Lyons. The croupiers were Major R. Worth, Dr. John Keay, and Dr. W. M. Buchanan.

"THE KING."

"THE PRINCE OF WALES."

The PRESIDENT submitted these toasts, which were honoured in due form.

"THE CITY OF EDINBURGH."

Dr. J. G. SOUTAR: Mr. President, My Lord Mayor (Laughter)—I beg pardon, the atmosphere of the south still clings to me—My Lord Provost, Ladies and Gentlemen,—When the President asked me to propose the toast of "The City of Edinburgh" I was rushed into acceptance by that wave of emotion which the very mention of her name is apt to arouse in those who have known Edinburgh and therefore loved her. It might be that some of my psychological friends from the south see in this bit of self-revelation evidence of that emotionalism which they associate with what in their politeness they would call senectitude, avoiding the more frankly expressive term "senility." An active emotional response is the normal reaction to the stimulus which Edinburgh affords to those who really know her. I am experiencing the difficulty of putting into cold words the reason for and explanation of the charm which Edinburgh exercises, and of the grip it retains on those who for long have dwelt elsewhere. So much can be said that I am embarrassed, not by the poverty, but by the plenitude of the material. Of the many possible lines of thought which I might follow in proposing this toast, I ask you not to think of Edinburgh as a city in the ordinary sense, as a place of streets and squares, of fine buildings, beneficent institutions, renowned educational establishments, as the seat of enlightened civic government—though for all these she is famous—and of the beauty of her situation as an enduring joy-feast. I ask you rather to think of her as a potent and persisting suggestion, an atmosphere of influence, an environmental force which silently but irresistibly moulds succeeding generations of plastic youth to the tradition of spiritual, intellectual and political freedom, for which through its long and varied history Edinburgh has unflinchingly maintained her claim. The influence of tradition which Edinburgh inspires is the city's invaluable gift to her own and her adopted children. In its formative effect on character, it gives potency and purpose to the academic learning which Edinburgh's famous schools so amply afford. I give you therefore "The City of Edinburgh," with which I have the privilege of associating the Rt. Hon. the Lord Provost, who, by the choice of his fellow citizens, is the representative and the guardian of that fair home of fine traditions.

The Right Hon. the LORD PROVOST, in replying, said: I must first of all thank Dr. Soutar very sincerely for the way in which he proposed this toast. I thank him also for the new title which he gave me. I have acknowledged many titles in the position I hold, but he has endowed me with another one which I will always treasure. I have occasion to reply to the toast of Edinburgh very frequently, but I always do so with a feeling of trepidation; but after all the City of Edinburgh does not need an advocate; she requires no spokesman, as Dr. Soutar has said. Edinburgh is known all over the world, and regarded with respect and with admiration for the beauty of her surroundings. These are natural acquirements for which she always has been and will be respected and admired and loved. But we cannot always live in the past. I am reminded of the fact that her fame is largely due to the medical school attached to our city. For long generations the Edinburgh School of Medicine has been famed for its pre-eminence in medicine and surgery, and as the science of psychiatry becomes better known I trust the School of Edinburgh will take a foremost place in that science also. We feel very honoured that your Association has chosen the City of Edinburgh for its meeting this year. And may I add a personal note—we feel very proud that Prof. Robertson is President this year. (Applause.) We in Edinburgh feel it is a well-deserved honour that he has been elected to this position, and we feel it redounds to the credit of the School of Medicine of Edinburgh. I should like to accord a very cordial welcome to the Association, and to those distinguished French visitors who are staying with us at present. (Applause.) We welcome them as honoured

guests, and we hope they will take away with them very pleasurable recollections of their visit to Edinburgh. I thank you, Sir, for the way in which you have proposed the toast of "The City of Edinburgh." (Applause.)

"THE UNIVERSITY OF EDINBURGH."

Dr. C. HUBERT BOND: In all the ups and downs of a thirty years' professional life, nothing has stirred greater emotion in me than finding myself, albeit one of the least in her kingdom, called upon to give beneath her very shadow the toast of this venerable and illustrious University. To many of us permitted by the courtesy of the College—whose Royal Charter of 1681 antedates the birth of even the University's Medical Faculty—to make good cheer in this beautiful hall, this toast is really one of *Alma Mater* in the fullest sense of those words; and to me, as it surely must equally be to others similarly privileged, it is with a feeling of grateful pride that I can claim to range myself among her alumni.

And what is the University whose health I am going to ask you to drink? Is it her stately buildings—old, new and ancillary—to which the visitor to the Queen of the North may perchance ask to be directed? Much could I say concerning them, for they are hallowed by memories and friendship which it would be pleasant to revive. But suffice it therefore to say that of her buildings she may well be proud, for representing more than utility they, as it were, appear "to satisfy some faith"; and, as that faith can never have contemplated anything short of the fulness of life, it will not be taken as unphilial to name some that so far have not emerged from abstract to concrete, and to point to the absence, for instance, of any University Temple; or that "fourth estate," a University Press; and—save perhaps for women and *pace* University Hall—the absence of any residential colleges. Personal reflection and a watch on the lives of juniors have convinced me that, admitting with deep gratitude the many and great, and in some measures unique, advantages of an Edinburgh education, the lack—outside seminar and laboratory—of the training and discipline begotten of college comradeship, and still more of that confraternity engendered by the healthy rivalry between several colleges, is a disadvantage which, I humbly submit, ought not indefinitely to be overlooked. To meet it the Union and the Athletic Club have done all they can, and for the use of the latter the recent purchase by the University of a second field is of good augury.

But no! Visit and admire them, within or without, as well as you may, it is not her buildings, not the static but the dynamic, energising and live University whose health we wish to drink. There are her three great officers—the Chancellor, a post which for over thirty years has been filled by the Earl of Balfour, accepted by the world as guide, philosopher and friend; the Vice-Chancellor and Principal, Sir Alfred Ewing, who to the University's great advantage is able to bring both inspiration and breadth of vision, as well as indefatigable energy, in the discharge of the multiplex and onerous duties of his office, and with whom I shall couple this toast; and thirdly, the Lord Rector, in whose triennial election the franchise is vested in the students, and mention of whom entitles me to include in our toast the health of the Prime Minister himself. As Rector he is President of the University Court, a body corporate endowed with very wide powers, administrative and disciplinary, and in which, by the *ex-officio* presence of the Lord Provost and an Assessor, the fortunes of the University and City are happily identified. It is, however, with the supreme functions of teaching and research that we associate the University; and, though we certainly will not omit from our thoughts her nearly 5,000 undergraduates—for it is they, to-morrow's mankind, with their annual tide of freshmen, drawn from all parts of the Empire and clamorous for knowledge, that provide her with perennial youth, imperialise her influence, guard her gates from the worm, and are the mainspring of her existence—nevertheless the core of our toast is appropriately the *Senatus Academicus* and the six Faculties.

The Kingdom of Knowledge is not only itself boundless but is devoid of dividing lines within, and it is only our own limitations that impose these subdivisions in teaching; but admitting their necessity—which, as it bids fair to increase, behoves a resolute guard against water-tight compartments, and especially does this danger beset medicine—we cannot but admire, and the University can justly be proud of her organisation for teaching and her success in continuing to attract teachers of eminence, not a few of whom we know as of world-wide fame. That they have entered into a great heritage, the creation of illustrious predecessors,

they would be the first to acknowledge, and also that it does but add to their responsibility. As to the efficiency with which this is discharged, an eloquent witness is the proportion of Edinburgh's over 13,000 graduates who have not only acquired honourable positions, but who, in response to the inspiration caught from their teachers, are themselves making still more brilliant the torch of knowledge.

This is mainly a medical gathering, and it will not be misconstrued if, for a moment, I single out the Faculty of Medicine. It takes some years, but thirty must certainly be enough and to spare, to provide that perspective needed rightly to appreciate what Edinburgh did for us. In my day—and it would surprise me if the same does not still hold good—we even dared to complain that we had too many lectures; among us this evening is an old friend of mine whose father said he would have sent him to Edinburgh had he been able to afford him two pairs of breeches to each suit. (Laughter.) Be that as it may, there were certainly no "wall lectures"; nor, recollecting the crowded benches at optional courses, can the credit for attendance at the others be claimed by the stalwart janitors with their card-collecting propensity; yet I am inclined to think that had we had a little more breathing time in which to work up and digest our scribblings, they would have been of still greater value. But, of my happy college days—and they were very happy—the two dominant notes now in my mind are, first, the complete and whole-hearted devotion of our professors and other teachers to the interests of the students; and second, the fact that we were made to think, both in lecture and at bedside—questions were put to the class which we were told to sleep on and think about, and the answers, sometimes from the lips of a student, were given next day. One of our Dons, affectionately known to us as "Honest John" (Cheers)—but he was by no means the only one—was particularly fond of this form of mental tonic, and while a multitude of his recited facts have faded from my memory, I can still recall all his questions and their answers. So long as the chord of these two notes rings true, Edinburgh teaching will ever be second to none.

You are impatient for me to give place to Sir Alfred Ewing, but permit me reference to just one other point, the omission of which you would not lightly forgive. In our own specialty of psychological medicine Edinburgh has taken a momentous and pioneer co-ordinating step, one which, subject to local consideration, it is the hope of my colleague Commissioners of the Board of Control to see adopted in the vicinity of each University in England and Wales, namely, a linking upon an official and permanent basis of the duties of the medical staff of mental hospitals with teaching and research within the University. Edinburgh has not only instituted a chair in Psychiatry—at least one English University for years has possessed such a Chair—but she has entered into an arrangement with the managers of the famous Royal Edinburgh Hospital at Morningside, under which, for the future, the posts of Physician-Superintendent and Professor of Psychiatry become a joint appointment, election to which is vested in the two bodies.

Not the least part of our satisfaction in the matter is the circumstance that the first occupant of this most important position is the newly installed President of our Association, Prof. G. M. Robertson (Applause), whom, not doubting but that his advice has been a material factor in the arrangement, we most heartily congratulate, as well as Sir James Adam and the other managers of the Royal Hospital at Morningside for their enlightened generosity in presenting £10,000 towards the endowment of the Chair. If not out of order, may I add that to bring psychological medicine—where it should be—within the main current of general medicine, one step further seems needed, namely, to make this union a triad, the additional partner that I have in mind being the Royal Infirmary.

I have detained you far too long. Edinburgh University is what all the world knows her to be. She fills, not a niche, but a sphere, whose void is unthinkable. Enthroned on crags in the Metropolis of the North, still more so is she in the hearts of all who know her. Therefore, all hail to the Thistle and Castle and Book! The Toast is "The University of Edinburgh," and with it I couple the name of the Vice-Chancellor and Principal, Sir Alfred Ewing, K.C.B. (Applause.)

Principal Sir ALFRED EWING, in replying, said: For some time back I have very unwillingly been obliged to admit in myself a tendency towards what Dr. Soutar has so pleasantly described as senectitude rather than senility, but tonight I have a much more difficult question before me. For the first time I find some doubt as to my mental stability! (Laughter.) And the reason is plain. Our President and the late President between them have a little conspiracy to test

the condition of my mind by administering to me a series of severe shocks. It was only when, after sitting down to dinner, I opened this programme and turned from the first page—which is wholly delightful—to the second that I learned I was amongst the speakers. But that is not the only test which your President has applied. In the course of conversation he has told me to-night what I never knew before—that I am a Deputy Governor of his insane asylum. (Laughter.) That is a responsibility from which I naturally shrink, a responsibility which I never contemplated. I suppose one has to qualify for it in the same way as one has to qualify for the bar—by eating dinners; but if they are all like this one I shall enter on my training with a comparatively light heart. Dr. Soutar said something about the power of persistent suggestion; although I am not a medical man I have heard of Dr. Coué, and I am afraid the suggestion before me is to take the form of saying, "Every day and in every way I am becoming madder and madder." Perhaps the best way to fit oneself for the post of Deputy Governor will be to read over again that admirable text-book on the subject, which was written by a member of the family of one of your predecessors, Mr. Storrer Clouston, under the title of *The Lunatic at Large*. (Laughter.) The President has given me another shock by reminding me that the University and the Asylum are in a sense next door neighbours, the University playing fields are coterminous, or, as we say in Scotland, march with the grounds over which he exercises governing control. The two are only separated, I believe, by a low wall, over which it is easy to jump. (Laughter.) We have now a professorship of psychiatry, which we owe to the Governors of the Asylum. It gave us particular satisfaction to think that the first occupant of the professorial chair is our distinguished President. Our meeting to-night has the balance of its sanity largely restored, if I may say so, by the presence of guests from the other side of the Channel. (Applause.) We welcome, as the Lord Provost has already said, with the greatest interest and pleasure the presence of Prof. Roger and his colleagues from the University of Paris as visitors to the Medical School of Edinburgh. I hope when they return they will clearly distinguish between the normal sane inhabitants of Edinburgh and you gentlemen who are on a visit here. (Laughter.) This great Association is, I believe, founded upon nothing less than an Imperial basis. It is not simply British; it includes Ireland and all the Colonies. I have no doubt in Ireland, which you are shortly to visit, you will find much to work upon. Your colonial relationship tends to strengthen the ties between the Mother Country and the Colonies. Whatever else the University is it is essentially an Imperial institution, drawing its pupils from the ends of the earth, and sending them back with the torch of knowledge lighted to the ends of the earth, where they diffuse that light. This is a great function of our Edinburgh University. It has become even a greater function than it used to be with the increase of numbers and the increase of importance of University work in the judgment of the public. More and more the world is looking to the Universities for guidance in the conduct of life, and if civilisation is to survive, if it is to get out of the slough in which it finds itself, it will be, I think, largely through the influence of the Universities. (Applause.)

"THE GENERAL BOARDS OF CONTROL."

Mr. J. G. JAMESON, M.P.: I have been selected for the honour of submitting to you the toast of "The General Boards of Control of the Insane" in this country. I have noticed frequently that it is a custom of after-dinner speakers to express a mild surprise when the honour of proposing a toast has fallen upon them, and to say it might more properly have fallen upon some other lady or gentleman. I do not know if it is the desire or expectation of any of our audience that I should follow that procedure to-night, but in case it is I should just like in one word to tell you how it comes that I am standing here to-night. My friend on my right, Sir James Adam, the King's Remembrancer, came to me yesterday and said that the proper person to propose this toast of "The General Boards of Control of the Insane" would clearly be one of their own beneficiaries, one of the people under their control, but owing to the unavoidable absence of a duly certified mental defective, that you, Mr. President, thought that this toast should be entrusted to a Member of Parliament, and Sir James added that when he was consulted he had no hesitation in saying that I was the man for the job. (Laughter.) I belong to that unfortunate race of people called not only politicians, but lawyer politicians,

who are known to be the low-water-mark of humanity. (Laughter.) I think he had in his mind when he asked me to come the precedent of that English lawyer who provided in his will for a home for the insane, and added, "I have made all this money out of habitual litigants, and I think it is only restitution to give it to a home for the insane." (Laughter.) I do not know, Sir Arthur Rose, if there are more than the appropriate number of my professional brethren under your control, but I may say the last time I visited one of these commodious and luxurious establishments under your supervision was when I went to see a very dear friend of mine who comes from my own part of the country, and who was described by an old farmer's wife to me in the very Christian and tolerant spirit of that countryside as "an awfa guid man but a perfect martyr to the delorium trimens." (Laughter.) I was delighted and surprised to meet there a very large body of my professional brethren who had disappeared from my ken for many years. I will only mention one. He is a man who is well known to us, and who is there very comfortable and very happy, and who did very well in the war, because in the beginning of the war, in August, 1914, he wrote to the Chancellor of the Exchequer offering the dreadnought, which was accepted, but three days later he wrote again that on consideration he had come to the conclusion that it would be better to withdraw and cancel his offer of the dreadnought because he thought it would be more useful to pay off the National Debt. (Loud laughter.) It was only then that the Chancellor of the Exchequer thought that there must be something wrong. (Laughter.) Well, I am bound to say so little did I know of the activities of the Board of Control that when it was first suggested to me my own base politician mind thought that the Board of Control related to the Liquor Control at Carlisle, but on it being made clear to me I betook myself to Oliver and Boyd's *Almanac*, and there I found that the activities of Sir Arthur Rose in Scotland are very onerous and very special. It is said in that profound book of learning that in Scotland every lunatic who is maintained by the public funds is under the immediate and personal care of the General Board of Control. When I read these words I pictured Sir Arthur going round the 7,000 lunatics of Scotland and shaking hands with these lunatics, which I am certain he does. (Laughter.) Before this dinner I was talking to an asylum doctor and he told me with what eager delight the visits of the General Board were looked forward to, how carefully the welcome of these descending angels was prepared and with what sorrow their departure was regarded, and the old humdrum life recommenced. I am reminded that it was some time ago that I heard an Englishman remark to a Scotsman about the larger percentage of mental defectives in Scotland as compared with England, and the Scotsman gave a reply, which will be assented to by at least every Scotsman present, because he said, "I don't wonder at that, but you must remember that a person who would be held mentally deficient in Scotland might be thought a very clever person in England." (Laughter and applause.) There was just one other thing I gathered from Oliver and Boyd, and that was that the ultimate decision rested with the Board of Control as to who was and who was not insane. That is a terrible question, surely. Few of us are so stout-hearted that we can listen to such a question without tremor, and if I am lavishing praise upon the Board you will understand that the gratitude is with a lively sense of favours to come. (Laughter.) Who is insane, and who is not insane—that is a very serious question. Perhaps the strongest view was put by the lunatic himself, who was asked, "Why are you here in the asylum?", and he said, "Well, I said the rest of the world was mad, and as the rest of the world said I was mad, I must have made a mistake." We can only hope that if that position comes near any of us you will behave in a way in which justice is tempered with mercy. (Laughter.) I have to couple this toast with the name of Sir Robert Armstrong-Jones, the Lord Chancellor's Visitor for England, and with the name of Sir Arthur Rose. That name of the latter gentleman has become almost a household word in Scotland. As you will see, he is a warrior, with the coveted letters of D.S.O. after his name, and the coveted title of Colonel, and he is very well entitled to both of them. He is also the friend of the smallholder. I have therefore very much pleasure in giving to you the toast of the General Boards of Control, coupled with the names of Sir Robert Armstrong-Jones and Sir Arthur Rose. (Applause.)

SIR ROBERT ARMSTRONG-JONES: As time is short, I will merely content myself by reciting to you the story of a Judge at Assizes. There was a very black record against the prisoner, but he asked the prisoner if he had anything to say

for himself, and he replied "No," whereupon a person in the body of the Court got up and said, "I have something to say about him." The Judge then asked the prisoner if he had any objection to his friend speaking. The prisoner replied, "No, but hang me first." That is exactly my position now, and you do not want to hear me. My friend, Dr. Soutar, has referred to two definite characteristics of the Scot—firstly education, and secondly, caution. I will give you an example of the second. A clergyman of the Church of England announced that after the service there would be a silver collection, whereupon promptly two Jews fainted, but they were carried out by sixteen Scotsmen! (Laughter.) As regards education, I was reminded of a story related to an Englishman that there was not a single Scotsman who was not connected with the University. The Englishman arrived in this beautiful city of Edinburgh to verify this when he met a young girl and he asked her, "What are you?", and she said, "I am a beggar, sir." "What is your mother?" "My mother is a beggar." "What is your father?" "My father is in jail." "Have you any other relations?" "Yes, I have a brother." "What is your brother?" "My brother is in the University. My little brother happened to have four heads and he is in a glass bottle in the University!" (Laughter.) Now, may I say that the people who are departures from the normal are well looked after by the members of the Board of Control. You have heard already from Dr. Bond what is being done—what the Universities have done—with regard to teaching and to the care of those who are departures from the normal. I leave the rest to Sir Arthur Rose.

Sir ARTHUR ROSE: At this late hour I feel I cannot do very great justice in replying to this toast. Might I, however, say with regard to one of the questions put, that the statutory oath under which I labour debars me from answering it, but I am not going to take advantage of that; I would rather put forward the plea of inexperienced youth—youth in the sense that I am probably the youngest recruit in the work in which the members of this Association are interested. I have very recently joined the General Board of Control of Scotland, and what struck me was the extraordinarily happy relationship which existed between the local authority and other governing bodies—a friendship which has contributed so enormously to the success of this great work in Scotland. I can assure you that the Board of Control is thoroughly imbued with the same spirit, and as far as they are concerned will continue to be so. I might also add that I hope the speech which the President delivered to-day will be read by the public. I hope it will be read and digested by the public in preference to the reports of the Boards of Control. May I say that in Scotland we are extremely proud of our asylum system, but at the same time great success is like after an excellent dinner—it does not conduce to further effort. We must safeguard against the feeling that we cannot progress further. I was glad the President indicated the lines on which we could progress further in Scotland, namely the lines of increased clinical and pathological research work in our asylums. If our superintendents and the managing bodies can take these words to heart, and can do something to push forward the work in Scotland, I can assure them in advance of the hearty support in every possible way of the Board of Control. (Applause.)

"THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND."

Sir ROBERT PHILIP, in proposing the toast of the Association, said: I think I may fairly claim that the toast which has been committed to me is the toast of the evening. The evening is far spent and the night is close at hand. We must regard the place it occupies on the toast list as an expression of the fine altruism of the Society. Your Society is not quite young; it has reached what we may call the interesting age, very young societies, like people, are less interesting. You are 81 years of age; for a Society that is, I fancy, equivalent to the delightful age of 35 or 40. Your baptismal name is suggestive. The first part suggests that strong Roman feature which is associated with the control and care of the madman. As intermediary between the keeper and madman you have done very well. There was a time when it was thought necessary to protect the madman from his fellow men, and his fellow men from the madman, and he was chained up to the stone wall of his cell. But thanks in large part to the influence of Pinel of France and

Tuke of England, the madman has regained his liberty. He is now treated as a man whom we respect, whom we are out to help in every possible way. The second part of your name recalls the influence of Greece. You have dipped into the deepest problems of human life. Whenever a new aspect of philosophy appears you have tried to apply it in respect of the treatment of the insane. If sometimes the pendulum has seemed to swing too far to one side it has swing back to the middle line of truth. I want to say what a great pleasure it has been for those of us who are attached to the Royal College of Physicians to see you in this hall. It has been a very real pleasure for two reasons. In the first place, as you sit here to-night you are surrounded by the portraits of some of the great departed, and among those there are three that I must refer to on this occasion. The first is a man who did not in his time get the credit that he should have got, I mean Prof. Laycock; the second is Sir John Batty Tuke, who was devoted to the advance of scientific medicine; and the third is Sir Thomas Clouston, so long associated with the great institution Prof. Robertson presides over; master of his art and grandfather of the lunatic at large. (Laughter and applause.) And now for the second reason. You have been, may I say, particularly happy in your choice of President. (Hear, hear.) Prof. Robertson is a man who, both in the University and in this College, we all honour. I asked him if there were any points to which I should refer. He reminded me that it was due to this College that the Royal Asylum for the Insane, so loyally presided over by Prof. Robertson, was founded so far back as 1792. We were the first donors of £25 for the purpose of erecting an asylum for the insane. Lastly, I would like to say that, so far as this Royal College is concerned, no Fellow is trusted more than Dr. Robertson. He is regarded as one of our wisest counsellors. We look to him filling the chair he is now occupying as President of the Royal College. (Applause.)

The PRESIDENT, in reply, said: At this very late hour you do not expect a speech of very great length from me. On behalf of the Medico-Psychological Association I have to thank Sir Robert Philip, the President of this College, for his appreciation of the good work done by our Association. This is not the occasion nor is it the time to enlarge upon the nature of this work. I may just refer, however, to the work that is done in the training of mental nurses in the duties of their profession, which has been really beyond all praise. I have to thank Sir Robert for his pleasant reference to my predecessors, the portraits of whom appear on these walls. I have to thank the guests who have honoured us here to-night, including the Lord Provost, the Principal of the University of Edinburgh, the Chairman of the General Board of Control, the President of the Royal College of Physicians and Surgeons, the Deputy Keeper of His Majesty's Signet, and other dignitaries. The Chairman of the Board of Control in England unfortunately is unable to come owing to illness. I may also say that we have the representative of the Norwegian Board of Control. We are on extremely friendly terms with the Boards of Control. I desire to take this opportunity of thanking the managers of the Royal Hospital at Morningside, and I may say it gives me great pleasure to express in this hall our appreciation of what they have done for us, seeing, as the President of this College has just told you, that the institution was really founded here by that well-known and able man, Andrew Duncan, who was then President of this College. I would be failing in courtesy if I did not thank the ladies for their presence here to-night. (Applause.)

"FRANCE."

The PRESIDENT: I wish to say that we are proud to entertain four Professors of the Faculty of Medicine of Paris, including, amongst those, Prof. Roger, the Dean of the Faculty, and also a Professor from the Faculty at Lyons. These gentlemen are the honoured guests of the University, and before singing "Auld Lang Syne," which follows, I wish, in order to show our appreciation of the civilising influence of France, and to show our appreciation of the scientific work she has done, and to show our unbounded admiration of the fortitude and endurance of the French people in the late war, to ask the ladies and gentlemen to drink with me to France. (Applause).

The toast was cordially honoured, and the proceedings afterwards terminated with the singing of "The Marseillaise" and "Auld Lang Syne."

MORNING SESSION.—THURSDAY, JULY 20.

At the Physiology Lecture Room, University New Buildings, the President presiding.

The PRESIDENT: There has been a slight change made in the arrangements for this Annual Meeting. Instead of having papers, we have decided this year to get addresses from men who have made reputations in the study of these particular subjects which appear on the Agenda. As you are aware, a great deal of recent theories circle round the influence of the endocrine and internal secreting glands, therefore I thought it would be of advantage to us if we could get someone who has made his mark in the study of this to open the series of addresses, and I naturally appealed to Sir Edward Schafer. He kindly agreed to do this, and I wish to say it was at the cost of a good deal of inconvenience to himself.

ADDRESSES.

"The Influence of the Endocrine Glands on the Nervous System." By Prof. EDWARD SHARPEY SCHAFER, LL.D., D.Sc., F.R.S. (see p. 347).

The PRESIDENT: We have had a most instructive and interesting address on a most difficult and complex and important subject. One of the difficulties the ordinary physician has in connection with this matter is the difficulty of obtaining in condensed form, that is easily comprehended, the most recent and authoritative views. As Sir Edward has told us, investigations are proceeding constantly, on a very widening circle, and it is only by an address such as we have listened to to-day that we get anything like a grasp of the situation. I therefore ask you to give a most cordial vote of thanks to Sir Edward Schafer for his most valuable address this morning. (Applause.)

"The Investigation of the Relationship of the Reproductive and Endocrine Glands to Mental Diseases," by Sir F. W. MOTT, K.B.E., LL.D., F.R.S.

Mr. PRESIDENT: I feel great diffidence in following my old teacher Sir Edward Schafer in this subject of which he has taught us so much. When your President asked me to take up the application of endocrinology to mental diseases, I felt I had a task before me that was impossible. I looked up endocrinology and I got completely dazed looking through the differences of opinion that were expressed; I therefore thought it would be better if I gave you a short account of my own work with a lantern demonstration. I should have written an address if it had been possible, but I did not feel it was possible to follow Sir Edward Schafer adequately in a subject which is difficult and as yet only beginning. Therefore with apologies for what I am going to say I will simply show lantern-slides, and endeavour to explain the work I am actually responsible for myself. I do so with a good deal of trepidation in the face of the master of the subject, after his extraordinarily illuminating address, which will be of the greatest benefit to this Association, because it opens out to them the whole subject comprehensively, and it will indicate to many young men the way to investigate disease, and to always look with a critical mind upon the results. I am sure when I show these slides I do so with humility, because I feel there is a great deal I cannot explain. But these are facts as far as I can give them, and I think if we collect only facts that are reliable then we can draw conclusions, but not before.

[The theatre was then darkened, and Sir Frederick Mott proceeded to give a résumé of his recent work on the pathology of dementia praecox, especially from the point of view of endocrinology, illustrating his remarks by lantern-slides of microphotographs, etc. He covered to a large extent the ground of his recent papers on this subject and announced the results of his most recent investigations. Readers are referred to previous numbers of this Journal, and to the *Archives of Neurology and Psychiatry*, from the Pathological Laboratory of the London County Mental Hospitals, vol. viii, 1922. See also his most recent paper with illustrations on p. 333. The meeting had the advantage of seeing many of the latter shown on the screen.—Eds.]

On the light being resumed Sir Frederick Mott continued:

To sum up with regard to the relation of these changes of dementia praecox, I would say this, that it is not the absence of the interstitial cells or degeneration of the interstitial cells that causes the changes in the brain, although we know

these cells energise the whole tissues of the body, but the genetic inadequacy which is shown by the fact that the two structures in the body are specially liable to undergo a premature atrophy. If we try to associate the absence or the partial absence of the hormone or the autacoid of the glands with the changes in the brain, then people would say, "Why does not castration produce dementia praecox?" So that I think the safer explanation of the facts would be that these structures which have been later developed have been developed from very few of the original protomeric cells of the neural type. Of course the stress may come from physiological conditions. Take the stress of puberty, take the stress of the woman who is in child-birth; that is a normal physiological condition, yet we know half the cases of dementia praecox are in married women and it comes on during pregnancy or parturition. Then as regards psychological stress, people seem to think I do not lay much stress on the psychological stress. I think the psychological stress influences the whole of the endocrine system. Therefore, if you have got your endocrine system upset that will affect these structures which are most liable to take such stress. Then there is the pathological stress. In fact, these people have a narrow physiological margin to work upon. If you can avoid this form of stress, then you will avoid a breakdown. But are we doing a service to the nation by keeping these people alive? (Applause.)

The PRESIDENT: Sir Frederick Mott is one of the members of our Association of whom we are most proud. There is no man who has done a greater amount of work and original research than he has—researches on very original lines. Not only that, he is a member we can call on at any time for a paper, and he never fails us. For many years he has been a standby to our Association, and he has been a credit. Some of his observations as regards the effects of the internal secretions from the reproductive glands open up a very wide field of speculation. I therefore ask you to give him a very hearty vote of thanks for his address this morning. (Applause.)

"Observations relating to the Sympathetic and Para-Sympathetic Systems."
By J. J. GRAHAM BROWN, M.D., F.R.C.P.Edin.

Mr. President,—You may recall that when you did me the honour of asking me to speak here I hesitated. I hesitated not only because the subject is an extraordinarily difficult one, but also because it is almost impossible to compress what ought to take about a dozen lectures into the space of half an hour. That is really the essential difficulty. You will remember that the autonomic system consists of two great divisions—the sympathetic and the para-sympathetic. Now, Sir Edward Schafer has spoken a great deal about the sympathetic, and that relieves me of something I would have had to say. I shall therefore speak chiefly of the para-sympathetic system, and almost entirely of its clinical aspects. But perhaps you will allow me to refresh your minds in regard to the anatomy of these two great divisions, and in a word but very briefly. You will remember that the sympathetic system has its cells of origin in the intermedio-lateral tract of the cord. In the case of the para-sympathetic system the outflow arises from three different regions of the central nervous system. There is the outflow from the mid-brain, the outflow from the medulla, and the sacral outflow. The outflow from the medulla is very complicated, and the most important part of it as far as clinical work is concerned is that which takes place through the vagus. These two divisions—sympathetic and para-sympathetic—are in large measure antagonistic in their action. Nearly every organ of the body is innervated by both. But in regard to their action there is this very great difference: the action of the sympathetic is as a rule a general action—it is developed with this intention—whereas that of the para-sympathetic is very much more local. Let me give you an example of their antagonism. The father of a professional friend of mine was a clergyman. He suffered very badly from asthma, but at the same time he was very anxious to perform the duties of his office. He was frequently confined to bed for days at a time, but when Sunday came he insisted on going to his church. He had often to be carried up the steps of the pulpit, but the moment he began to preach the bronchial spasm relaxed and his voice came clear and strong. The excitement of attempting to preach stimulated his sympathetic; this in turn relaxed the spasm of the bronchi, and for the moment the symptoms disappeared. The para-sympathetic causes contraction of the muscular wall of the bronchi, and the exact reverse is the action of the sympathetic. In most persons these two great divisions are in equipoise—

that is to say, they balance each other more or less completely. But in perfectly normal persons there are times when one or other dominates. You will remember quite well Cannon's various forms of experimentation, in which he showed that fear, dread and danger caused marked stimulation of the sympathetic. On the other hand, if the para-sympathetic becomes dominant, the tendency is for the man to be mentally depressed. Furthermore, there are certain mental conditions in which one or other of these outflows may be stimulated and excited. The feeling of disgust causing vomiting is an excellent example of this. The sentiment of shame is a stimulus to the para-sympathetic system. But there is a perfectly normal action in which in perfectly normal circumstances and individuals the para-sympathetic system dominates—that is, during sleep. In calm slumber all the sympathetic stimuli seem to be in abeyance. That system is no longer stimulated. Consequently the para-sympathetic system is, as it were, left to itself. I forget who it was who said that night was the time of the smooth muscle. That is not quite correct; it is the time of the smooth muscle innervated by the para-sympathetic system. That is why asthmatic attacks so often occur early in the morning. It is on that account that colic is usually apt to occur during the night, and the pangs of labour also start during these hours. Consequently the obstetrician who is repeatedly called out night after night must not attribute these nightly calls to feminine perversity. Apart from those persons in whom these two divisions are in equipoise and who are in the majority, there is a certain number of people on the one hand in whom the sympathetic system is distinctly dominant, and, on the other hand, a certain number of persons in whom the para-sympathetic system is relatively more powerful. The cause of this dominance is often toxic in origin. The para-sympathetic subject may be to all appearance perfectly normal. He may have no marked symptoms whatever, but on examination the clinical picture he gives us will reveal his condition. Now as a general rule (I am going to safeguard myself because there are all sorts of exceptions) behind the clinical terms sympathetic and para-sympathetic hypertonus there lies a distinct and important truth. Let us picture a para-sympathetic case. He comes into your consulting room and sits down. You will probably find that he is rather stout and in complexion more often dark than fair. His pupils on the whole seem rather small; his features are coarse, especially his nose; his skin is sallow, very likely greasy; and his palms will be moist. His mental condition tends to be that of depression. He is usually of distinct mental ability, and when you come to examine him carefully he will probably tell you that his saliva is rather copious. His pulse is rather slow, and if he is a dyspeptic he will complain of having pain three or four hours after meals. Under such conditions dieting may be made too stringent. I recall a case I saw some years ago of a lady about 30 who had this condition. She had seen various physicians, and they had strongly impressed upon her that if she found any particular article of food caused her pain she was not to take it again. The result was that when she came to me she was subsisting solely on a little skim milk. She was of average height and only weighed 5 st. 3 lb. I put her on belladonna and alkalies and dieted her carefully. In some eight weeks she weighed over 8 st., and her recovery has been maintained. Cases such as we have been considering are termed by the Vienna school cases of Vagotonia. The nomenclature is incorrect, for as a general rule the whole para-sympathetic system is in a state of hypertonus. In addition to that the description given by members of that school is to a certain extent misleading, too theoretical, and not in accordance in many particulars with proved facts. Nevertheless a certain basis of truth is undoubtedly present. Have we any means of determining whether there is hypertonus of the para-sympathetic system? Slowness of the pulse suggests vagal inhibition; the oculo-cardiac reflex is of high diagnostic value; the rapid return of the pulse-rate after exercise is suggestive, and, in an adult, marked variation in the rate of the pulse during the two phases of respiration is a sign of the kind of which we are in search. Apart from gastric complications, if there is vagal hypertonus the peristaltic movements of the stomach will be very marked and the secretion of hydrochloric acid abnormally great. A high glucose threshold may be looked upon as corroborative evidence provided the renal threshold is normal. I have not said anything about the action of drugs for I see that an address is to be given on that subject to-morrow. The lecturer illustrated his address, of which this is a mere outline, by instructive diagrams and drawings.—Eds.]

The PRESIDENT we are very much indebted to Dr. Brown for showing us how one may apply facts supplied by the physiologist and pathologist in our investigation of clinical cases. We have to thank Dr. Brown for his most interesting address. I ask you to afford him a very hearty vote of thanks. (Applause.)

LUNCHEON.

The members and their ladies were the guests of Sir Hugh Arthur Rose, D.S.O., Chairman of the General Board of Control for Scotland, and of Lady Rose, at luncheon, in the Hall of the University Union. The toast of "The University Union," proposed in eloquent terms by Prof. ERNEST W. WHITE, was responded to by The Rev. W. C. S. ANGUS, President of the Union, in words at once graceful and humorous.

AFTERNOON SESSION.—JULY 20.

At the Physiology Lecture Room, University New Buildings, the President presiding.

ADDRESSES.

"The Inter-reaction of the Endocrine, Sympathetic, and Central Nervous Systems in Organismal Toxæmia, with Special Reference to Emotional Disturbance." By DAVID ORR, M.D.

Mr. PRESIDENT.—I was exceedingly glad to receive the invitation from Prof. Robertson to come and give you a short address on the subject which is on the programme. I am rather afraid that the title is somewhat too ambitious, and I am rather afraid also that time is short. I shall endeavour, however, to put a few broad principles before you—principles, I think, which are relative to the close association between neuro-pathology and psychiatry. I think the best thing, in the first place, is to define my own position on the matter. I am by training, perhaps, more a pathologist than a psychologist, although I have had the opportunity of doing a little psychology. I often feel that there is a tendency at the present day to take too narrow a view of our subject. I am inclined to the opinion that some concentrate too much on pathology, while others concentrate far too much on psychology, and I often think with regard to that curious imaginary line that is drawn across the medulla and separates the neurologist from the psychologist, the line which always reminds me of that imaginary equator round the globe, that it would be a good thing if a tactful and scientific Father Neptune took both schools across the line and baptised them in the new faith. Now, I can only bring two points before you to-day, and the first is that the sympathetic nervous system is a very important factor in the determination of the localisation of lesions in both the spinal cord and the brain. The second is that the cerebral nervous system and the endocrino-sympathetic system are interdependent. Inflammation, of course, is the basis of pathology, and pathology is the basis of medicine. I will show you what I mean. As we know, there are certain lesions of the spinal cord which are called system lesions. Some are degenerative, due to traumatic lesions higher up, others are due to infection along the nerves. That is the subject that has been dealt with already, but I wish to draw attention to lesions which are non-systematic. The lesions to which I refer are found scattered along the postero-medium septum. They are also found round the periphery column. Now, at first sight one would say the explanation of these lesions is perfectly simple. It is due to toxæmia. It is, of course; but that is not an explanation, because when you come to examine the cord in serial section the first thing you find is that they are distributed in a most peculiar manner—that they are distributed, if you catch them early enough, between dorsal I and lumbar II. You will also find that the lesion decreases from the cervical region downwards. So one begins to think, Well, there must be another factor in this. Knowledge of anatomy is useful. The argument resolves itself into this: here you have those lesions distributed in an area which is controlled by the sympathetic reflex, and therefore the sympathetic system must have something to do with it. In order to test this certain experiments were conducted, and in order to exclude any absorption along peripheral nerves toxins were introduced into the abdominal cavity, and it was found that precisely the same distribution occurred, and at once one had to face the question: What rôle does the sympathetic play in the

determination of these lesions? The argument, of course, had to be carried a little further. I need hardly mention that the existence of sympathetic nerves in the brain was steadily denied until 1907, but on reviewing the work I think one must come to the conclusion that there are sympathetic nerves in connection with the cerebral vessels. Certain experiments were made, and certain lesions were found. [The speaker here, with the help of diagrams, showed how disturbances of the sympathetic lead to nutritional changes in the nervous system and their effect on the emotional state, etc.] As you know, neurologically we are provided with nerves which subserve our life of relation—that is to say, our limbs and special senses, and with nerves that subserve our life of nutrition, and the nerves of nutrition convey impulses which form the basis of our sense of well- or ill-being. Frequently people are inclined to look on the nervous system as a lot of separate entities; they talk about pre-central and post-central groups, etc. I am rather inclined to regard those centres as centres of maximum excitability, but the whole brain, the whole spinal cord, and the whole sympathetic system with it, acts as one, otherwise the human body would be out of harmony and could not adapt itself to its environment. Now, my reason for making that statement is this: you are acquainted with Cajal's law of dynamic polarisation and the law of avalanche. Cajal has shown that any simple stimulus impinging on one cell is transmitted to thousands of others; hence stimulation of one cervical area must affect the whole cortex. I would enter a strong plea for us looking much more broadly, not only at the anatomy, physiology and pathology of the nervous system, but at the genesis of psychology. We have come to a pass when I think, as I indicated before, we are getting into little water-tight compartments. Each man is doing his little job, but I do not think we are looking at the question broadly enough. During the war, when one had the opportunity of seeing those cases of shell-shock, one was struck tremendously by the physical reactions which followed psychic trauma, and one could not help but think that the shock had a directly deleterious action upon the ductless glands, and that the chemical products again reverberated upon the psyche and established a vicious circle. I had intended to say something about ductless glands—a subject for which I have got the greatest respect, but time does not permit. I will just simply close my remarks by saying that if this subject of psychiatry is going to advance at all we shall have to take a far broader and far more biological view of the whole question. (Applause.)

The PRESIDENT: The work that Dr. Orr has done in connection with the pathology of the nervous system is well known to all of us. It is of the very highest quality, and it has helped us to understand many of the changes in the nervous system. Dr. Orr has, since the early days of his work, I think, himself taken a broader view of mental troubles, and he has also now included the psychical factor in his estimation of the changes that take place in the nervous system. In the practical address we have had from him he shows how there is, as he said, a vicious circle established by which all these factors are combined together. I have to ask you to give him a very cordial vote of thanks for his most interesting address. (Applause.)

"The Influence of Chemical Substances on the Endocrine Glands and Nervous System." By Prof. J. C. MEAKINS, M.D., F.R.C.P.Edin. (see p. 367).

The PRESIDENT: In the scientific work which Prof. Meakins does in the Edinburgh University he sets a model to the medical student of the present day how he should investigate disorders and disease. You will have observed how cautious and careful he is in drawing deductions, and how he warns us not to be led astray by the mirage of theory. You see how thoroughly versed he is in organic chemistry, how he has applied his knowledge of chemistry to the study of diseased conditions, and how he has combined his researches with living organisms associated with disorders and disease. He has, in his address to us to-day, I think, pointed out to us the possibilities that exist in many of the obscure cases of mental disorder we have to deal with. I therefore ask you to give a very hearty vote of thanks to Prof. Meakins for his most instructive and admirable address. (Applause.)

"The Mental Factor of Some Endocrinopathies." By W. H. B. STODDART, M.D., F.R.C.P. (see p. 374).

The PRESIDENT: Ladies and Gentlemen,—This series of addresses would not

have been complete unless we had had one on the influence of the psychical factor in the production of these disturbances. Dr. Stoddart has told us that these psychical mechanisms produce endocrine secretions, and these secretions may influence and produce changes in the nervous system, and therefore I ask you to accord him a hearty vote of thanks for his address. (Applause.)

These addresses were suggested by me in order that we should not take narrow-minded views of the treatment of mental disease. They all lead up naturally to the discussion that we are to have to-morrow morning, which will be initiated by a paper by Dr. Chalmers Watson. After that there will be an open discussion, at which every one of the members of the Association who have had practical experience of the care and treatment of mental disease will be able to say something. But, after the series of addresses we have had, no one will be able to say there is only one method of treating mental disease. It is perfectly obvious the factors are complex. No one can say by the treatment of the psychical factors you will get recovery, nor by any other special treatment. We all frequently hear in medicine of the vicious circle, but there would appear to be also a physiological circle. The nervous system, as more than one speaker has said, is a complete whole, involving the whole organismal functions, and if one function of the body is disordered it is almost certain other functions of the body are likewise disordered, and the organism as a whole suffers. There is a tendency to look at this question from one point of view—one to look at it from the organic point of view, and the other from the point of view of the disturbance of endocrine secretions. A third person might look at it from the point of view of chemical substances to be absorbed. All these questions are related, and in the treatment of disease you must take a wide outlook. I therefore hope that as many of you as possible will turn up to-morrow in the Hall at the College of Physicians, in order to discuss the practical aspect of this question as dealing with the treatment of the patients whom we have under our care.

"AT HOME" AT CRAIG HOUSE, MORNINGSIDE.

In the evening many members and their ladies availed themselves of the kind invitation of the Chairman and Managers of the Royal Hospital, Morningside, to an "At Home" at Craig House. The splendid baronial hall and its adjoining drawing rooms and galleries were greatly admired, and a delightful orchestra, the much-appreciated efforts of several fine singers and the cheery hospitality of the hosts enabled the guests to spend a happy and restful evening.

MORNING SESSION.—FRIDAY, JULY 21.

In the Hall of the Royal College of Physicians, the President presiding.

DISCUSSION ON THE TREATMENT OF MENTAL DISEASES. PAPER.

"The Treatment of Intestinal Toxæmia." By CHALMERS WATSON, M.D., F.R.C.P.Edin.

(This paper will be published in the Journal for January, 1923, with illustrative plates.—Eds.)

The PRESIDENT: I will commence my remarks with a story. A friend of mine, a married lady, had taken her husband, with feelings of admiration, to see an old nurse, an old retainer of the family. Said the married lady: "Well, Janet, what do you think of my husband?" Janet looked the husband up and down, and turned to my friend and said, "You have pickit weel." I felt, when listening to Dr. Chalmers Watson's address, that I had "pickit weel" in selecting him to open this discussion this morning. I am sure every one of you was impressed with the finished address which he gave us to-day, covering the whole ground from beginning to end, and speaking without faltering for a moment. I think it was as fine an address as I have listened to for a very long time. What has pleased me most is that he really covered, in his opening remarks, the whole ground, and introduced into this address, which is to form the basis of a discussion of treatment, references to all the aetiological factors which those physicians and physiologists described to us at our session yesterday. He informed us that he did not ignore the genetic factor, to which Sir Frederick Mott drew particular

attention in connection with the development of dementia præcox, nor did he ignore the psychic factor. In fact he laid very great stress on that, and perhaps went in some respects further than the majority of us would go—not further than I would go, but there are others who might say he went as far as it was possible to go. He referred also to the bacteriological factor and the factor of intoxication, indeed he really covered the whole ground of the ætiology of mental and nervous disease. The main portion of his address, however, was, as it ought to have been, a practical address on treatment, and I think, by describing his own methods with one or two selected cases, he demonstrated to us how all these ætiological factors which I have referred to can be brought usefully into the treatment of particular cases, and how it is impossible to say that one method of treatment is the cause of the recovery of the patient, but how by a combination of all these various forms of treatment you may get happy results. Now, there are many people here who are able to speak on these several aspects of the treatment of insanity, and I would ask these gentlemen, therefore, to continue the discussion which has been so ably opened by Dr. Chalmers Watson.

Sir FREDERICK MOTT: I have listened to Dr. Chalmers Watson's most eloquent address with great interest. Yesterday I had the opportunity of seeing the demonstration which he gave in his clinical laboratory, and it impressed me very much indeed, because as a practical physician—for I am a physician; at least I was connected with a general hospital for thirty years as well as with the asylum service—I am perfectly convinced that his attitude towards this subject is the right one. I believe that pre-disposition is the most important factor, and that stress, whether it be physiological, as we see it in the case of women in parturition, in pregnancy or in involution, or from the effects of toxæmia of any kind whatever, reveal or excite this pre-disposition, and that pre-disposition depends upon a narrow physiological margin in the highest psychic level. I quite agree with Dr. Chalmers Watson in his view with regard to the importance of the psychological element, because anxiety, we know, produces a profound effect upon the whole endocrine system. I have had plenty of evidence in support of this during the war among cases I saw of soldiers who suffered with an anxiety neurosis. I saw many soldiers suffering from contemplative fear, which was still persistent owing to the fact that they suffered with terrifying dreams connected with the war, and many of these men had all the signs of a disturbance of the endocrine system. They had tachycardia, high blood-pressure in many instances, and signs of exophthalmos and tremors, and as the anxiety passed off so the symptoms disappeared. I regard all these conditions causing disturbance of the endocrine system, may have a profound influence on the metabolism of the neurones. If you have a mental conflict going on the metabolic conditions are interfered with, particularly when sleep is disturbed by dreams or by insomnia. When you have that condition there is no doubt a tendency to constipation. The two seem to go together—mental depression and constipation. I am reminded of a story of Voltaire. Voltaire was engaged in conversation with an Englishman one evening. Both were very pessimistic, and they resolved to commit suicide the next day. I suppose Voltaire was pulling the Englishman's leg. He met him on the bridge where he was to jump from, and he said, "Pardonnez moi, monsieur, j'ai bien dormi, le lavement a bien opéré, et le soleil est tout à fait clair aujourd'hui."

There is no doubt that while the epithelium of the intestine is in an unhealthy condition the absorption is more difficult than if the epithelium is in a normal condition. That is why a large number of patients in asylums suffer from dysentery. I have made a lot of *post-mortems* on people who suffered with dysentery. Sometimes the bowel was enormously distended, sometimes contracted, and the whole epithelium affected. The absorption of toxins in the bowels consequently plays an important part in exciting mental conditions. This would also be an important factor in making chronic a condition of mental disease. I would like to ask Dr. Chalmers Watson whether he has noticed any difference in the bacterial flora of the faeces if the faeces are not examined fresh. We have been doing in the laboratory at the Maudsley Hospital a number of researches upon typhoid and para-typhoid, and we found unless we got the faeces quite fresh we were unable to isolate these organisms owing to the rapid growth of the colon bacillus and other organisms. With regard to the streptococci, one finds often in the stool streptococci, and I regard that as evidence of the existence of a pathogenic

organism. This new method of culture Dr. Chalmers Watson has introduced will be of the greatest value, and it is based on a good sound principle, namely, that the organisms in the intestine have been accustomed to certain food to grow upon, and hitherto we have not given them that food, and so by introducing that into it as media it is able to cultivate these organisms which we were unable to do before. With regard to vaccines, I think that a good deal is attributed to vaccines which may be due to other causes. After all, a great many of these people have been for a long time absorbing the toxins of the organism, and I think unless vaccines are given on really scientific principles it is more by suggestion than anything else that they act. Now Dr. Chalmers Watson emphasised the importance of suggestion upon these cases which have been under his care. One can imagine his personality will have a most profound effect on his patients, because it would certainly inspire them with confidence, and that is a most important factor. I think if doctors paid a little more attention to the human side of treatment we should hear much less of Christian Science, faith-healing, neuro-induction and Coué-ism. (Applause.)

Prof. ERNEST W. WHITE: I have had some thirty years' active experience in public asylums and I am very interested to-day in this paper on the treatment of intestinal toxæmia, and I should like to make a few practical remarks bearing thereon. In the first place, in these cases of intestinal toxæmia we have to consider whether the toxæmia is the cause of the insanity or is the result. Many cases of chronic insanity suffer undoubtedly from intestinal toxæmia, and we have to resort to various measures of treatment. Undoubtedly our old chronic cases in the asylum always suffer from constipation, and, as Sir Frederick Mott has just said, there is not the slightest doubt that it is due to the unhealthy condition of the intestinal walls. The asylum dysentery which has been so marked up to a few years ago—at least in my time—was most marked in many of those old chronic cases. I found myself that a large proportion of my patients who suffered from dysentery were the old chronics who had persistently for years and years suffered from constipation, and not had the attention to their bowels which they should have had. We resorted to lavage of the stomach in cases of melancholia, especially senile melancholia, and we found that they were materially improved by it. Undoubtedly the main line of our treatment should be by utilising the organs of elimination.

Dr. H. Crichton MILLER: I speak to-day under the disadvantage of not having had the pleasure and privilege of hearing yesterday's discussion, which bore largely upon this point. Dr. Chalmers Watson's opening address was one of unusual interest. The only criticism I would venture to make is that Dr. Chalmers Watson has given us—no doubt unintentionally—an over emphasis on one or two sources of auto-intoxication. He has stressed the importance of intestinal stasis and urinary infection. I am very ready to admit their importance, but we must not forget numerous other sources of infection hardly less important, such as tonsils, teeth and naso-pharynx. Of the cases that I see many have been examined in regard to intestinal and urinary absorption, but very few have been submitted to dental radiography. Of the many who have not been so examined a considerable proportion show definite evidence of one or more dental abscesses. Such a case as the one Dr. Chalmers Watson described is frequently the subject of a general streptococcal infection of which the intestinal and urinary symptoms are only partial manifestations. Now we cannot afford to let ourselves think in short and easy terms of toxæmia and mental disorders. We must keep in mind a much more complicated chain of cause and effect. I suppose you will all agree with me when I say that the deeper our investigations go the more apparent it becomes that few toxins produce their primary effect on neural tissue. In most cases the toxin primarily attacks the more sensitive endocrine tissue, and it is through the impairment of endocrine function that emotional disequilibrium arises, and from that in turn that mental derangement proceeds. It is easy for us to think of a toxæmia and melancholia as cause and effect, and to bracket them in our minds as such. But unless we estimate the patient's endocrine condition at the moment we are guilty of loose thinking. Dr. Chalmers Watson has said that there should be no two schools of thought in regard to the psychic and physical factors. Dr. Chalmers Watson is an idealist and his view is utopian. There are two schools of thought: there always will be two schools of thought. Are we not all equipped with binocular vision, yet how common is "the lazy eye"? By prejudice, either native or acquired, we all have a bias to the physical or the psychic. Ideally we should

approach a case equally prepared to discover a physical or a psychic aetiology, and—what is more—equally interested in either case. How many of us can claim this freedom from bias? Few, I venture to think. At the present time there are two strong currents of new thought in regard to mental disorder. The one tries to attribute everything to a physical cause, the other to a psychic. The one traces all mental phenomena to hormones, the other to complexes. The miracles of endocrinology are trumpeted from New York, and the marvels of psycho-analysis from Vienna. Between these cross-currents we must keep our bearings, and we shall not succeed unless we approach the problem in general and each case in particular with that freedom from bias which I have referred to as so essential and so unusual. And while we are giving an unbiased hearing to all these new theories, we must bear in mind that it is contrary to the scientific spirit to reject as invalid the fruit of countless human observations simply because it does not happen to fit into a new theory. Take as an example the question of the criminal type. The psycho-analysts have long been busy in reducing all delinquency to terms of complexes and repressions. Now this accords ill with the general impression that criminality tends to be associated with certain physical characteristics, and in particular it collides with Lombroso's historic work. But if we turn to the endocrinologists we find that they are at any rate attempting to correlate—in terms of endocrine pattern—physical and psychic characteristics. Now it seems to me that while we study the emotional and intellectual reactions of our patients, we should concurrently, and with no less zeal, investigate this psycho-physical relationship in terms of endocrine function. It will take years of very patient observation no doubt, but ultimately we should be in a position to think of any given case of mental disorder in terms of a triple aetiology: (a) Endocrine pattern, linked to native qualities, both physical and psychic; (b) endocrine history, including the physiological crises, toxic impairment, etc.; (c) emotional history, covering emotional traumata, conflicts, repressions, and so on. With regard to the first of these categories, I venture to submit that in the sympathetic trio of endocrines (the thyroid, pituitary, and adrenals) we have the origin of two great principles of human activity—the creative urge and the power urge. I would suggest that the thyroid is the gland that stands for creation, and therefore for procreation. The pituitary seems to represent the subjective or imaginative power principle; the adrenal appears to originate the objective or immediate power urge. These speculations I throw out merely to indicate how relevant to our investigation of any given case is a consideration of the endocrine equilibrium. Take, for instance, a simple case of depression. Let us suppose the patient is a woman. What of her thyroid? It is functioning inadequately. She feels her creative power is ebbing. It may be that she longs for another child. It may be that she is an artist and finds her power of artistic expression leaving her. Or take a man suffering from depression. What of his adrenal function? Is he conscious of a loss of drive in his business due to a progressive hypoadrenia? If so, we can well understand his depression. Such every-day examples illustrate the necessity for thinking in terms of the mental and the physical concurrently, and not only concurrently but without bias, for it is only thus that we can hope to reach that one school of thought which Dr. Chalmers Watson has idealistically held out before us as the right one.

Dr. T. C. MACKENZIE: I must confess to a feeling of depression at the character of our discussion, and also, if I may say so, the character of the only paper this morning. The subject for discussion down on the Agenda is the treatment of mental disease. I am depressed because it appears to me to have been approached from a very extremely narrow arc. I think a very considerable amount of what Dr. Chalmers Watson said to us this morning, and said to us in a very interesting manner, has been repeatedly said before, and the accumulation of facts for which he made so strong and so reasonable a claim is one that has not been lost sight of by the members of this Association. A vast number of facts along the lines of the investigation he indicated have been collected and established. My friend Dr. Shaw, for instance, has collected a very great number of facts. He worked under Dr. Bruce at Murthly, of whom perhaps it might be said there is no greater authority on conditions of the blood in the insane. I think a certain amount of the work Dr. Chalmers Watson indicated has also been done already by Dr. Bruce. I was rather interested in what my friend Dr. Crichton Miller said. He spoke of his occupying a middle position between the section he calls his psycho-analytical friends and the other body whom he refers to as the materialistic workers. And

he also spoke of the lazy eye. We members of the Medico-Psychological Association do, I think, keep an open eye on every side and reap what benefit we can. With regard to psycho-analysis: as Dr. Chalmers Watson said, I have read a good deal of it, but I do not really know much about it! Sir Frederick Mott did a good thing in emphasising the importance of humanity in the treatment of mental disease, and it seems to me humanity and common sense will carry us very far into the treatment of our fellow sufferers.

Dr. DONALD ROSS: This question of intestinal toxæmia was written about long ago. I cannot remember who the author was, but I have an old book which I picked up somewhere in which the author not only laid great stress on that, he went even further. He advised that every case should be given an emetic first of all as a routine to empty the stomach, and then treat the whole bowel with antiseptic. I would like Dr. Chalmers Watson to try that. Prof. Chiene used to advise us all to read a book published about 1812—Hamilton "on Purgatives"—and apply its principles in every department of medicine and surgery. Then Dr. Chalmers Watson said he was very much struck by Dr. Chambers' report. I think you will find the same facts in almost every report. Every person who becomes insane is physically ill. The treatment is to aim at removing as many of the underlying conditions as possible. I recall a case that occurred in France of a poor fellow who had had persistent vomiting, and came down to me after being treated by a psychologist. There happened to be a great push on at the time and I had not time to attend to him properly until after the rush was over, which was four or five days later. In the meantime he was treated with a dose of castor oil and milk diet. When next I asked him how he was keeping, he said, "I am perfectly all right now, of course," adding that "up there" they had hypnotised him and given him bully beef and biscuits, but here he had been put on the proper treatment.

Dr. HELEN BOYLE: I did not intend to speak at all to-day, but I do feel keenly on this subject. I think sometimes the mental attitude is responsible and sometimes the physical, and much more common is it to find that they are all responsible. If you can remove one of them the patient will be better, but if you can remove them all the patient will be well. I should just like, therefore, to emphasise the fact that has already been stated—that the treatment of the nervous case is greatly influenced by the treatment of the patients' friends. I was particularly glad to see the demonstration at the Infirmary. I had a case not so very long ago which I should very much like Dr. Chalmers Watson's opinion upon. I did all I could for the patient, and I got her into very good condition. Then I left her for a little while and she had a relapse. It is very difficult to know how to get the intestinal condition into such a state that it will be permanent. I am sure continual lavage becomes a perfect obsession.

Dr. C. HUBERT BOND: It would be impertinence to attempt to discuss the paper when I unwittingly did not give myself the opportunity of hearing the whole of it. But I can get out of it by saying I have had the advantage of discussing this matter frequently with Dr. Chalmers Watson in London. All I would like to do, if I may, is just to point the moral as I see it, and it is that the powerful and convincing address, such as we have heard, only emphasises the fact that we cannot afford to be without a laboratory in our hospitals, and a great many of you have not got one, and if you have it is not in use. Autogenesis, I think, was mentioned by Dr. Chalmers Watson, or one of the others, and doubtless that explains a good many of our recoveries, but there are something like 37 per cent. or thereabouts that do not recover, and the absence of their recovery is without adequate reason. To come back to my point, I am sure the moral is we cannot afford to do without a laboratory in full working order in competent hands as an adjunct to every hospital. Personally I do not believe in the combination system of laboratories. Do not misunderstand me. I do not disbelieve in the supreme value of a great organised laboratory with which several of the mental hospitals are affiliated; I do believe in them, but I do not think they can ever take the place of the daily work in the laboratory. If the hospital is big enough it may want more than one laboratory. May I say that it is not often that we have a recruit to our Association who on the day or thereabouts of his election promptly furnishes us with a paper or an address of the quality we have had from Dr. Chalmers Watson to-day, and I am sure we most heartily welcome him as a member of the Association. (Applause.)

Dr. W. R. DAWSON: I have not myself been directly engaged in the treatment of mental or other forms of disease for the last ten or eleven years, but I have always taken the point of view which Dr. Chalmers Watson has so eloquently expressed, and so very properly impressed upon us as to its importance, and in a much less thorough way I have always endeavoured to tackle my cases from the material side, at all events by making a thorough physical examination of every case as it came under my care. And I should like before going any further to emphasise what Dr. Bond has just said with regard to the importance of a laboratory in every asylum. Dr. Chalmers Watson has pointed out that it need not be very elaborate, that for clinical purposes something very much less than one expects in the case of a joint laboratory like the one at the Maudsley will do. After all this is really an extension to the mental hospitals of what we find in all clinical hospitals. We expect a good pathological laboratory available somewhere to do the elaborate work which is required for the examination, for instance, of specimens from the nervous system and elsewhere, but we also want attached if possible to every large ward—certainly to every division of the hospital—small laboratories where clinical work can be done, and this is all that one asks in the case of a number of asylums. I think the ideal system would be to have a small clinical laboratory connected with every asylum, and in addition to that one of our central laboratories for a number of asylums in the country. With regard to the substance of the very eloquent address we have had from Dr. Chalmers Watson, I do not intend to take up any time in criticising the points, even if I felt capable of doing so; but there is one point I would like to call attention to, and that is the bacteriological infections of the lower bowel, which undoubtedly do produce some effect, whether through the endocrines or something else, upon the nervous system, and which may arise from a failure, not of the endocrines in the first instance, but of the organs of digestion. There is one case in particular that occurs to my mind. This was a medical man who was under my care a good many years ago. He was a cocainist, and he came in for a peculiar nervous condition which was produced by cocaine. When he had been under my care for some time he called my attention to some very peculiar objects which he was passing from his bowel, and on investigation it was found he was suffering from muco-membranous colitis. In regard to the membranous condition one came to the conclusion that the pancreatic digestion was the fault. I should say he had been suffering from constipation for years, and after trying a number of things he himself hit on a method of treatment which eventually proved satisfactory—that is to say, he had practically a lavage every morning, a plain injection of hot water, and he also took a pancreatic preparation which was given in a particular form of tabloid. He also took a certain amount of saline. By these methods his colitis was cleared up and his constipation disappeared. His mental condition improved very much, so that after a considerable time—he stayed with me for a considerable time, because he rather liked being there, and he began doing pathological work, which had not been his speciality before he left and studied abroad. He did most admirable pathological work. I may say the membranes were simply loaded with bacteria, and I have no doubt that these bacteria and the irritation which they set up contributed to some extent at all events, to his mental troubles. That is, I think, a point which is worth while bearing in mind, and it may be necessary to tackle the digestion in order to restore normal affairs in the bowel. I have listened to the discussion with great interest, and I should like personally to thank the speakers for the large amount of information and the different points of view which they have presented to us. (Applause.)

Dr. DODS BROWN: With regard to what Dr. Chalmers Watson said about washing out the bowel, for many years in certain cases we have practised that in the hospital I am connected with, in depressed cases, and I feel convinced that very often the prospects are most excellent. But that is not the only treatment. Whether that in itself helps the patient I do not know, but my own feeling is that it does. With regard to what Dr. Chalmers Watson said about vaccine treatment, I remember when I was Senior Assistant at Morningside giving vaccines to mental patients. The vaccines were prepared from the urine of patients, but I confess I do not think we saw any material benefit from these vaccines. Certainly the number of patients treated was not very large, but I think we carried on this form of treatment in a sufficiently large number of cases to make one think that

the treatment was not very beneficial. Another form of treatment which I should like to mention is that which Dr. Donald Ross and I carried on and published some years ago, and that is the treatment by the use of colloidal metals. Of course we are glad to carry out any treatment in the hope that good results may follow. Several of the cases showed definite improvement.

A MEMBER: I had no intention of making any remarks, and much more so because I was in the unfortunate position of not hearing Dr. Chalmers Watson's paper. We are not all materialistic, and I am sure we are not all psycho-analytic. As members of this Association I think we ought to take up a middle attitude. As far as the endocrine glands are concerned, if you put your patient into the best physiological conditions then the chances are the ordinary tendencies of health will have free scope, and that is a matter we can all do. As regards psycho-analysis, what we see of those cases is probably not a fair sample. I think the patients we see mostly are not fit subjects for psycho-analysis.

Dr. CHALMERS WATSON, in reply, gave expression to the pleasure and gratification which had been given him by the interest and appreciation which the members of the Association had shown in his remarks. Time would not allow of him dealing at any length with many of the points which had emerged in the discussion. He would content himself with referring to a few of the more salient ones. Sir Frederick Mott had raised an important point in his reference to the condition of the intestinal epithelium; that was a vital part of the problem. As a result of a number of observations specially directed to the point, he had not found any appreciable difference in the flora when examined within periods ranging from an hour or two up to twelve or eighteen hours. It should at all times be kept in view that the terms "intestinal stasis" and "intestinal toxæmia" were in no way synonymous. Intestinal stasis existed, sometimes in marked degree and for a lengthy period, without apparently inducing any notable symptoms of deranged health. Later, however, these supervened, and, in the speaker's view, their development was largely dependent upon the occurrence of minute lesions of the epithelial lining of the bowel. In focussing his remarks, as he had largely done, on the intestinal route of infection or intoxication, he wished to make perfectly clear that he recognised other important sources of infection or intoxication. Dr. Miller had referred to the teeth, gums and tonsils; the naso-pharynx and uro-genital tract, especially in women, are also channels to be kept in view. A striking example of an acute mental disorder resulting from a bacterial infection of the genital tract is puerperal mania. In regard to oral sepsis, it should be kept in view that in cases of long-standing oral sepsis, the mere removal of the septic focus by extraction sometimes failed to yield any benefit to the patient; this in many cases was undoubtedly due to the fact that the intestinal tract had become secondarily infected and now acted as a primary source of infection. All were agreed as to the practical value of aperient remedies in many cases of mental disorder, but we possessed little knowledge of the precise method of their action. The main object of the speaker was to emphasise the need for a more thorough investigation of cases of mental disorder, on simple clinical and simple bacteriological lines, by correlating the results of the investigation of the intestinal tract by means of bismuth meals, with (a) the naked eye and microscopic examination of the contents of the large bowel as revealed by the study of the stools and double wash-out, and (b) the more systematic examination of the urine, especially in regard to its cellular and bacterial content. In this connection the speaker drew attention to the value of the Saccha rose milk agar medium, introduced by him as a primary culture medium capable of throwing new light on the intestinal flora in health and disease. His experience led him to think that a recognition of the facts described would prove of value in arriving at a truer knowledge of the aetiology of mental disorders and also prove of value in treatment. By a little co-ordinated effort, on these lines, on the part of asylum physicians it would be an easy matter to secure, in the course of a year or two, the data available from a preliminary series of, say, 500 cases of selected mental disorder. There was, in the speaker's view, no doubt whatever that the result of such an inquiry would add greatly to our present knowledge of the aetiology and treatment of mental disorders, and the information so obtained would further in all probability be of great value to the general physician in the study and treatment of other general medical disorders.

The PRESIDENT: As this sitting terminates the work of this Association at its Annual Meeting, before we depart I wish you to give a hearty vote of thanks to

Dr. Buchanan, our Divisional Secretary, for the painstaking and onerous duties he has performed so well for these meetings. He has attended to all the details, and it is only those who have been officials of this Association who know the amount of detailed work that has to be attended to to make a meeting of this kind a success. I hope all of you leave with pleasant recollections of this Annual Meeting; at any rate, we have done our best to make it pleasant, agreeable and instructive for you. (Applause.)

Sir FREDERICK MOTT: I have very great pleasure in seconding the vote of thanks, and I should like at the same time to express my gratitude, and in expressing my gratitude I feel I am expressing the gratitude of the whole psychological profession for the extreme kindness, hospitality and cordiality with which the Association has been received in Edinburgh, which is greatly owing to our President, Prof. Robertson. I am sure we are all very grateful to him for the admirable manner in which the meetings have been conducted, and the way in which we have been received in Edinburgh. But it is not new to me to come to Edinburgh to be well received. I have had that pleasure on several occasions before, and I am sure we are all very grateful to the whole of the Faculty for the way in which we have been received here. I have very much pleasure in seconding the vote of thanks to Dr. Buchanan, under whom the arrangements have been so admirably carried out. (Applause.)

The PRESIDENT: In thanking you on behalf of Dr. Buchanan and myself for your vote of thanks, I would just conclude by saying I was very pleased to see what an excellent photograph has been taken yesterday, and I would like the authority of the Association to present in its name a copy of this photograph to Sir Arthur and Lady Rose, who were our kind hosts yesterday, and I also think that a copy might be presented by this Association to the General Board of Control in Scotland for their kindness in giving us the use of their offices for our Council and Committee. (Applause.)

This concluded the Annual Meeting held at Edinburgh in 1922, and likely to be memorable in the annals of the Association.

EXCURSIONS.

The report of the Annual Meeting would be incomplete without reference to a number of delightful motor trips to places of interest in and around Edinburgh arranged especially for ladies accompanying members by the Ladies' Committee. They included a tour through the Scott country, calling at Melrose Abbey and Abbotsford, a visit to Linlithgow Palace with tea at Champfleurie by the kind invitation of Sir James and Lady Adam and a visit to Bangour Village Hospital, where Mrs. Keay dispensed hospitality.

To Lady Wallace and the Ladies' Committee not a little of the general success of the Annual Meeting was due, and for their kindly co-operation the Association is grateful.

[Members who have not already ordered copies of the photograph of the group taken in the New University Quadrangle can do so from Mr. John Moffat, 125a, Princes Street, Edinburgh. Price 4s. 6d., including printed list of names.—EDS.]

PARLIAMENTARY NEWS.

August 2nd, 1922: Asylum patients' claim to discharge.—Mr. ROBERT RICHARDSON asked the Minister of Health if he was aware that two Ex-service men—J. Wickenden at Long Grove and C. S. Norris at Banstead—were being detained in these two asylums respectively, while their parents in each instance were exceedingly desirous to undertake complete responsibility in regard to them and to give them comfortable homes and every care; that the wife of each, for reasons of their own, refused their release; that the wives' refusal was backed up by the medical official of the Pensions Ministry, who had decided that they must remain where they were and continue to be treated as lunatics on pain of loss of dependents' allowance; that the Board of Control had referred the case of these two private patients to the visiting committee, which had by the Act no power over the discharge of private patients; that the attempt to bar their discharge was inoperative, since the medical superintendent had failed to prove (in accordance with Section 74 of the Lunacy Act) that they were dangerous and unfit to be at

large; that the delegation of powers of intervention to the Pensions Ministry was contrary to the provisions of the Lunacy Act; that, in the case of C. S. Norris, the decision of two independent doctors under Section 49 had been overridden by illegal reference of his case to a visiting committee, whose function was restricted to dealing with paupers; and, in view of the indignity thus perpetrated on Ex-service men, would he take steps to see that they were not any longer deprived of liberty, and that they were indemnified for the injury done them by a lump sum to enable them upon immediate discharge to find their way back to a self-supporting position in life.—Sir ALFRED MOND replied: I am fully acquainted with the facts of these two cases. The Ministry of Pensions are empowered to pay an allowance to the wives while the husbands are detained under institutional care. But if the patients are discharged contrary to medical advice, that allowance would cease. The visiting committee has power in regard to the discharge of all patients whether private or public by virtue of Section 77 of the Lunacy Act, 1890; there has been no occasion for the issue of a certificate under Section 74 of the Act, because no application for the discharge of the patients has been made by the person entitled to do so under Section 72 (2) of the Act. The recommendation of one of the doctors who examined the patient Norris under Section 49 of the Lunacy Act was that he should be given leave of absence on trial. This was properly referred to the visiting committee, in whom rests the power to permit such leave of absence under Section 55 of the Act. I cannot concur in the view that any indignity has been perpetrated on these Ex-service men, and the hon. Member is in error in regard to his interpretation of the legal points. I am satisfied that the patients are, at present, properly detained, but their cases will be kept under careful observation.

August 4th, 1922: Women Members of Asylum Committees.—Sir ROBERT NEWMAN asked the Lord Privy Seal whether, in view of the fact that there were over 30,000 women patients of unsound mind in borough and county mental hospitals which had no women members of the visiting committees of those asylums, the Government would consider the advisability of granting facilities during the Autumn Session or the passing of the Lunacy (Visiting Committees) Bill, or, that the Government would themselves undertake to pass a measure of their own having the same object in view.—Mr. CHAMBERLAIN replied: The Ministry of Health is preparing a Bill which will deal, amongst other things, with the subject referred to in the question.

INCIPIENT INSANITY: PROPOSED GOVERNMENT BILL.

It is understood that Sir Alfred Mond, as responsible for the Board of Control, has under consideration the draft of a Bill to enable persons suffering from incipient mental disease to be treated in public or private mental hospitals without certification. As the result of some informal conferences, the Minister hopes that something like an agreed measure may be presented and in such short compass as to secure prompt passage. The proposal follows upon a pledge given by the inclusion of a clause to deal with this matter in the ill-fated Miscellaneous Bill which Dr. Addison submitted in September, 1920. All the various provisions of that Bill had to be sacrificed, but the importance of this subject has grown rather than diminished in the interval. It remains to be seen exactly what is contemplated. Broadly, the idea is that while the rich have resources available for curative care and attention, the poor have not, and that to afford facilities should prove economical in the long run, while avoiding for many the stigma of insanity and so inviting a freer use of existing facilities for treatment. It is pointed out that 35 per cent. of the certified patients in asylums are discharged in the course of time as recovered, and this is held to encourage the institution of methods for dealing with such trouble at an early stage if the patient is willing to take advantage of the opportunity. If the project meets with support county councils might, under improved financial conditions, be willing to provide separate homes or annexes for such sufferers.—(*British Medical Journal*, July 1st, 1922.)

EDUCATIONAL NOTES.

London County Council.—The Maudsley Hospital.—Lectures and practical courses of instruction for a Diploma of Psychological Medicine, fifth course, 1922-1923.

Part I.—(I) Eight Lectures on the Anatomy of the Nervous System. By Sir Frederick Mott, K.B.E., M.D., LL.D., F.R.S., F.R.C.P. On Tuesdays, at 2.30 p.m., commencing on October 10th, 1922. The evolution of the nervous system in the animal series; physiological levels; macroscopic and microscopic anatomy of the nervous system; the neurone concept; the projection, association and autonomic systems; ultimate distribution of the cranial nerves, spinal nerve roots and sympathetic nerves; the meninges—cerebral arteries and their distribution—the intra-cranial venous and lymphatic systems; the congruence of structure and function in the brain; the congruence of experimental investigation with anatomical observation; the clinico-anatomical methods of investigating the functions of the central nervous system—spinal cord—medulla oblongata—pons—cerebellum—mesencephalon—basal ganglia—cerebral hemispheres; the cortex cerebri in relation to cerebral localisation, including the cerebral mechanism of speech; the structure of the endocrine and reproductive organs.

Practical Instruction and Demonstrations: Methods of staining nervous tissue and preparing it for microscopical examination; the living nerve-cell—the nerve-fibre; degeneration and regeneration of nerves; distribution of sections, illustrating the principal diseases of the nervous system, for mounting as a permanent collection.

(II) Eight Lectures on the Physiology of the Nervous System. By F. Golla, M.D., F.R.C.P., Physician, St. George's Hospital. On Fridays at 2.30 p.m., commencing on October 13th, 1922. Reflex action—co-ordination and proprioceptive system; motor system, including muscle and nerve; sensation—fatigue—localisation and reference of sensation, normal and abnormal—special senses—mental work and fatigue; methods of investigation; physiology of the emotions; endocrinology; the autonomic system; action of alcohol and drugs; physiological chemistry; trophic and vegetative functions.

Practical Instruction and Demonstrations: Physiological Chemistry: Chemistry of the nervous system, and cerebro-spinal fluid; metabolism—vitamines and food deficiency; physico-chemical methods as applied to bio-chemical research; blood and urine analysis—acidosis, uræmia, uric acid.

Practical Physiology: Physical concomitants of emotion; recording reflexes and tremors in man; action of drugs on autonomic system; the study of reflex action in the spinal animal.

(III) Eight Lectures on Psychology. By Henry Devine, M.D., F.R.C.P. On Thursdays, at 2.30 p.m., commencing on October 12th, 1922. Definition and scope of psychology—behaviour—adjustment—classification of responses—instinct—habit—thought—relation of mind and body—the psycho-physical organisation as a biological unit—integration—methods of psychological investigation; analysis and classification of modes of consciousness; cognition—sensation—perception—imagination—memory—association—judgment; conation—attention—volition; affection—emotion—mood—sentiment; personality—temperament—character; sleep—dreams—suggestion—hypnosis—dissociation; illusion—hallucination—delusions—disorders of attention; fatigue—effects of drugs on reactions.

Practical Instruction and Demonstration: Sensation—psycho-physical methods—statistical methods—reaction times—association—memory—intelligence tests—muscular and mental work.

Part II: Part II will follow in January, 1923, about which a further announcement will be made as to times and lectures.

Fees: For the whole course of Parts I and II, £15 15s.; for Part I, separately, £10 10s.; for Part II, separately, £10 10s.; for one single series of lectures in Part I, £4 4s.; for one single series of lectures in Part II, £2 2s.

Inquiries as to lectures, etc., should be addressed to "The Director of the Pathological Laboratory," Maudsley Hospital, Denmark Hill, S.E.

The Tavistock Clinic for Functional Nerve Cases, 51, Tavistock Square, W.C. 1.—A course of six lectures on "Symbolism" will be given by J. A. M. Alcock, M.R.C.S., L.R.C.P., on Wednesdays, at 5.30 p.m., beginning October 18th.

(I) Instinctive mind; ways of "thinking"; the "unconscious."

(II) States of consciousness; dream state; waking state; subjectivity.

(III) Personality; complexes; resistances; repression; non-expression.

(IV) Personality and functions; classes and types according to complexes and according to essential features.

(V) Collectivity; myths and myth motifs.

(VI) Rebirth symbolism; analogies with mysticism.

Fee for the course, £1 1s. Tickets to be obtained in advance from the Hon. Lecture Secretary at the Clinic.

National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury, W.C. 1.—Syllabus of post-graduate course, October 9th to December 6th, 1922. The course will consist of the following subjects: Lectures on the pathology of the nervous system, by Dr. Greenfield, on Mondays and Thursday, at 12 noon. Out-patient clinics, on Mondays, Tuesdays, Thursdays and Fridays, at 2 p.m. Lectures and demonstrations on neurological ophthalmology, by Mr. Leslie Paton, on Wednesdays, at 3.30 p.m. Clinical lectures and demonstrations, on Mondays, Tuesdays, Thursdays and Fridays, at 3.30 p.m.

The fee for the whole course, including Mr. Paton's lectures, is £14 14s.; but these lectures may be taken separately for a fee of £6 6s. Any part of the course may be taken separately at a special fee. Special arrangements will be made for those unable to take the whole course. Fees should be paid to the Secretary of the Hospital at the office on entering for the course.—C. M. HINDS HOWELL, Dean of Medical School.

LABORATORY OF THE SCOTTISH ASYLUMS.

TWENTY-FIFTH ANNUAL REPORT BY THE PATHOLOGIST, 1921.

DURING the year sixty-one asylum cases were investigated and reported upon. In fifty-two of these the investigations required were bacteriological, in six histological, and in the remaining three of the nature of laboratory tests. In most of the cases in which a bacteriological investigation was made, autogenous vaccines were supplied for treatment. Five visits were paid to asylums outside of Edinburgh for the purpose of investigating cases. Dr. P. Vieyra (attached to the Royal Edinburgh Asylum) worked in the Laboratory from the beginning of October to the end of December.

My research work has been directed mainly to the investigation of the chronic bacterial infections occurring in cases of dementia praecox. The results of this investigation, up to the end of June, were recorded in a paper read at the annual meeting of the Medico-Psychological Association in July. In October arrangements were made by the issue of a circular for the systematic bacteriological investigation and treatment of a new series of cases of dementia praecox. The response of the asylum staffs to this invitation has, on the whole, been good. The results of treatment in some cases have been such as to give encouragement to those who hope that this hitherto incurable form of insanity will yet be made amenable to treatment at an early stage of its development. On the bacteriological side the evidence steadily accumulates that all cases of early dementia praecox suffer from extremely severe chronic bacterial infections of known neurotoxic character, involving chiefly the intestinal tract. The exact part that these chronic infections play in the causation of the malady has still to be defined, but there is already clear evidence that their suppression results in benefit to the patient. It must be remembered, however, that the detection of a chronic infection does not always imply that it is possible to eradicate it by any means yet known to science. The example of chronic infection by the tubercle bacillus should be sufficient to warn us against forming extravagant expectations of easy cure in dementia praecox. Moreover, chronic infection in this disease is only one of several factors in its pathogenesis. Three other important factors that require further investigation are—(1) those that are purely psychological, (2) the effects of disorders of internal secretion, and (3) the auto-intoxication dependent upon intestinal stasis. The special importance now being attached to the last in America requires that it should be made the subject of careful investigation here also. I believe that this factor and the disorders of internal secretion are mainly consequences of the intestinal neurotoxic infections, and that suppression of these at an early stage would be sufficient to prevent the development of the malady. This view is borne out by the completely successful results of treatment in two very early cases in which the characteristic intestinal infections were present. Both were treated by therapeutic immunisation: all of the disquieting symptoms disappeared, and the patients remain well after two years. Unfortunately, cases of dementia praecox,

before they reach a mental hospital at all, are generally suffering from what is really an advanced phase of the morbid process, and have already sustained some degree of irreparable brain-damage. Nevertheless it should be possible to arrest the progress of the disease at this stage, and to return many of the patients to their homes, to be useful members of the community. It may be hoped that under the new arrangements for hospital treatment of early cases of insanity, foreshadowed by recent public discussions, opportunities will be afforded for the investigation and treatment of cases of dementia *præcox* at a much earlier stage than that at which it is generally possible to deal with them at present.

It is hardly necessary for me to dwell upon the enormous saving in money that would result from even the moderate success of therapeutic immunisation in early cases of dementia *præcox* and other forms of acquired insanity. It may be said, however, that at the present moment there is nothing else in the scientific horizon that holds out any good hope of saving the country from the necessity of soon enlarging existing asylums and incurring greatly increased expenditure for custody. In my judgment, the knowledge of the relation of insanity to bacterial infection has now reached a point at which it would pay the asylums of this country to support laboratories for the bacteriological investigation and treatment of early cases of insanity. As regards the continuation of research work upon this subject in Scotland, it is for the Asylum Boards to decide whether they wish to have the benefit of the results of many years of breaking and tilling of new ground in this Laboratory, or whether they are going to allow these labours to come to an end just when they are promising an excellent harvest. Better facilities for research are urgently needed, and money is required for the extension of the investigation into other fields that must be investigated.

W. FORD ROBERTSON.

THE LABORATORY,
10, MORNINGSIDE TERRACE,
EDINBURGH;
February 20, 1922.

OBITUARY.

JAMES MIDDLEMASS, M.D., F.R.C.P.Edin.

JAMES MIDDLEMASS was born in Edinburgh in 1862, and was educated at George Watson's College and at Edinburgh University. He first obtained the degrees of M.A. and B.Sc., being especially interested in chemistry; but later he took up medicine, and in 1888 he graduated M.B., C.M., with honours. He then studied at Strassburg, and on returning to Edinburgh was for a time Resident Physician in the Edinburgh Royal Infirmary. Having taken his M.D. he was elected F.R.C.P.Edinburgh. In 1890 he was appointed Pathologist in the Royal Edinburgh Asylum, where in due course he occupied the post of Senior Assistant Physician.

In 1898 he became Medical Superintendent of the Sunderland Borough Asylum at Ryhope, a position which he retained till his death. In 1918 he was appointed lecturer on mental diseases at the College of Medicine, Newcastle-on-Tyne. In 1898 he married Miss Elkins, the sister of his predecessor at Ryhope. He had two children, a son and a daughter. Of his extremely happy married life this is not the place to speak.

He was somewhat run down when, early this year, he went to Scarborough for a golfing holiday. While staying there he was attacked with appendicitis, and, in spite of several operations, septic trouble developed. After a distressing illness, borne with extraordinary patience and fortitude, he died on May 2nd, 1922.

A memorial service, attended by representatives of the Borough Council and members of the profession, was held at Ryhope Church, but the actual interment was at Edinburgh, and at this a number of his personal friends were present, including several members of the Medico-Psychological Association.

In the early part of his professional life Dr. Middlemass contributed many papers to the medical journals. For thirteen years, dating from 1905, he reported the latest advances in psychological medicine for the *Edinburgh Medical Review*—a task for which he was peculiarly qualified by his wide reading and his knowledge of German. Two noteworthy articles, "Developmental General Paralysis," and

"Traumatism and General Paralysis," appeared in the *Journal of Mental Science*, to which he contributed a large number of reviews.

In association with the late Sir Thomas Clouston and with Dr. Ford Robertson, he wrote a series of articles on pathology in relation to mental disease. Another paper of great value, on "Night-Nursing in Asylums," was written in conjunction with Dr. Elkins. In this it was clearly demonstrated that noise, turbulence and degraded habits could almost be abolished during the night in a mental hospital if the nursing were effectively organised. The advantages of dormitories over single rooms were also explained. The writer of the present record has had opportunities of seeing the practical result of the methods advocated at the Sunderland Asylum; and the quiet and good order which prevailed in all the wards during the night were most remarkable.

Dr. Middlemass was an active member of the Medico-Psychological Association, attending the general and branch meetings with regularity, and often contributing papers. He was particularly interested in the training of nurses, and wrote a section for the old edition of the Handbook for those engaged in mental nursing. He was, moreover, a hard-working member of the Committee appointed to revise this handbook. To state the authorship of the various sections is not customary, but his contributions, which dealt chiefly with practical nursing, were of the utmost value. The sincerity and enthusiasm of the writer are manifest throughout. It is pleasant to think that his words will influence the profession of nursing for many generations, since whatever changes take place, the high ideals and principles which he enunciated are too fundamental to require revision.

Dr. Hubert Bond, the President of the Association, in referring to the loss which it had sustained, stated that at an early date Dr. Middlemass would have been asked to accept the Presidency. But this was not to be!

Of all his other activities it is impossible to speak in detail. He was held in great regard in Sunderland, being twice President of the Sunderland Branch of the British Medical Association. His expert knowledge and practice in psychiatry by no means cut him off from the general body of the medical profession; while his independent position made his services invaluable during the controversies connected with the introduction of the panel practice and with military service. As chairman of the War Committee he discharged a delicate and heavy task with marked success.

James Middlemass was tall and spare, and at first sight he looked delicate; but in reality he possessed great endurance. He was an adept at games of all kinds, excelling at golf, cricket, tennis, curling, billiards, and whatever he took in hand. "It was always a pleasure to play with him," writes one friend: "he possessed the true sportsman's instinct, and 'played the game' whether he won or lost."

He loved the country and the open air, and long expeditions on foot. It was a privilege to spend a holiday with so interesting a companion. In 1908 the present writer accompanied him to Berlin, and on our return journey we visited the theatre at Brunswick. There Middlemass sat next to a lady, who joined in our conversation when she heard us speaking English. After a time she said suddenly:

"I cannot understand why you English are so blind! You will not heed warnings, and you refuse to listen to Lord Roberts."

It transpired that she was the wife of a German officer. Middlemass was deeply impressed, for he was a regular reader of the *Spectator*, which at that time had published articles about Germans which many of us thought unfair and injurious. The year 1914 showed that the chance conversation was prophetic!

If success may be measured by personal influence for good, James Middlemass achieved great success. All who knew him—old fellow-students, colleagues, pupils, friends, the members of his Committee and of the hospital staff, speak with touching and striking uniformity of his integrity, unselfishness and sound judgment. We realise keenly how much we shall miss him, how we relied upon his judgment, and how readily he spent himself for others.

He came of a musical family, and he played the cello well. By his fellow students he was regarded with admiration, now and then tinged by envy, because he did his work with such apparent ease, seemed able to choose the right course of action so surely, and was so quiet, imperturbable and trustworthy. As one of his old companions writes: "We might do well and aim high (I do not mean in the worldly sense); he did better and aimed higher. He was the disciplined servant of his ideals."

One old friend, himself a distinguished man, who knew James Middlemass from his boyhood, writes : " There is not a single recollection of him I wish to blot out. He was one of the best men I ever knew. . . . He was absolutely unassuming, true to the heart's core, strong with the strength that goes hand in hand with gentleness and courtesy and love. A genuine son of consolation, he laid his great gifts of intellect and skill at the door of those who needed them sorely."

Another, now a University professor, writes : " He certainly possessed all-round powers, and I feel he would have taken an eminent place in almost any branch of the profession. I may add that he was of a gentle and kindly nature, unselfish and absolutely upright in his dealings with his fellows, and always ready to help anyone. I cannot recall anything spoken or done by him with a taint of the unworthy."

" A peace-maker, and one who never undertook to do a thing without doing it," writes one friend; while another says, " His ability had nothing theatrical about it."

James Middlemass certainly never sought the limelight. Perhaps, indeed, he was too reticent, quiet and unassuming to win all the distinctions to which his achievements entitled him. But his influence was profound, and it is a cause for thankfulness that he turned his attention to psychological medicine, since he was uniquely fitted to help people in mental distress.

Though he rarely discussed religion, he was a man of deep religious convictions, and all who knew him will realise the aptness of words quoted by the Chairman of his Committee, Mr. Councillor Taylor, who wrote, " What nobler epitaph can any man have than this, ' After he had served his own generation faithfully, by the will of God, he fell on sleep.' "

It seems fitting to conclude this brief record of our friend by a sonnet written by his sister:

REMEMBRANCE.

James Middlemass, M.D.

Thanks for the rain upon the thirsty ground,
Thanks too for tears that ease the burdened heart;
But thanks supreme for memories that dart
Their shaft-like glory through the grief around.
Computing these, what are the riches found ?
Fair chronicles of one who played his part,
As friend and true physician, with an art
In wise and patient, gentle ways that bound
To him the hearts of many in strong faith
And love and leal devotion. Can such power,
Of origin divine, be held of death
And wither in the dust like any flower ?
Nay, 'tis alive—immortal aftermath—
To bless us when we reach death's golden hour.

BEDFORD PIERCE.

May, 1922.

MARRIOTT LOGAN ROWAN, M.D., R.U.I.

We regret to announce the death, on August 6th, at St. Anne's-on-Sea, of Dr. Rowan, who since 1915 has filled the post of Medical Superintendent of the Derby County Mental Hospital. He was a native of Carrickfergus, co. Antrim, being born there in 1871, and received his medical education at Queen's College, Belfast. He was a graduate of the Royal University of Ireland, taking his medical degrees M.B., B.Ch., B.A.O., in 1900 after a distinguished arts career. He received the degree of M.D. in 1903 and took up psychiatry in 1904, when he was appointed an assistant medical officer at the same hospital of which he subsequently became the medical chief. His health had been failing for some time but his end came quite suddenly, much to the distress of his many friends and relatives. His loss was keenly felt at his hospital, where he had endeared himself to both staff and patients. He leaves a widow and two young children, to whom we extend our sincere condolence.

NOTICES OF MEETINGS.

Quarterly Meeting.—November 23, 1922, at the Bethlehem Royal Hospital. Subject : "The History of General Paralysis," by the President.

South-Eastern Division.—October 24, 1922, at Virginia Water.

South-Western Division.—October 27, 1922, at Bath.

Northern and Midland Division.—October 26, 1922, at Stafford.

Scottish Division.—November 21, 1922, at Edinburgh: Address by M. Coué.

Irish Division.—November 30, 1922; April 26, 1923.

APPOINTMENTS.

ARCHDALE, M. A., M.B., B.S.Durh., Medical Superintendent, Sunderland Borough Mental Hospital, Ryhope.

BARTLETT, G. N., M.B., B.S.Lond., Medical Superintendent, Derby County Mental Hospital, Mickleover.

DAWSON, W. S., M.A., M.B., M.R.C.P.Lond., Senior Assistant Medical Officer, The Maudsley Hospital, Denmark Hill, S.E. 5.

GILLILLAN, J. A., M.D.Glasg., D.P.M.Lond., Second Assistant Medical Officer, City Mental Hospital, Humberstone, Leicester.

MAPOTHER, EDWARD, M.D.Lond., F.R.C.S.Eng., Medical Superintendent, The Maudsley Hospital, Denmark Hill, S.E. 5.

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